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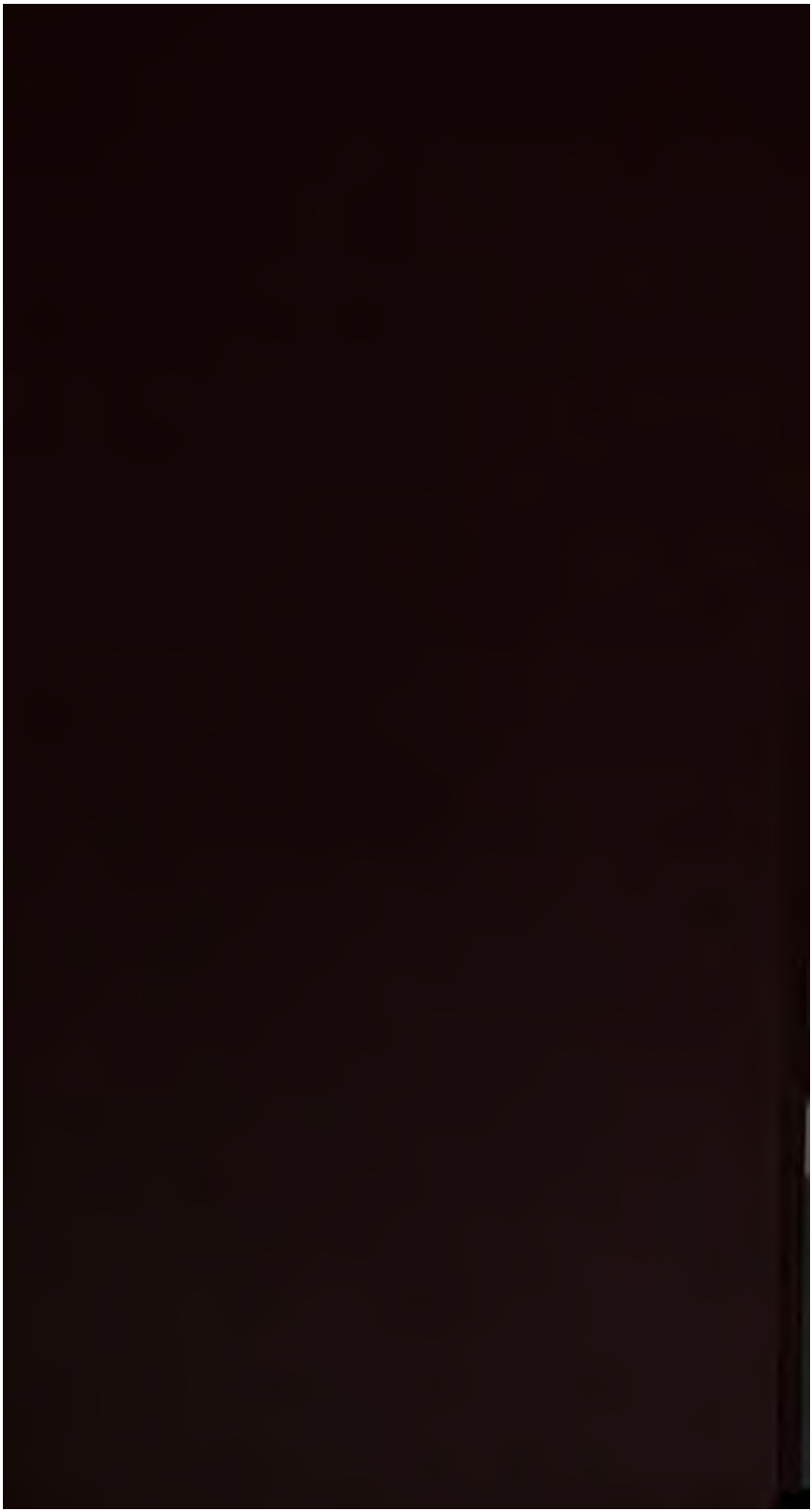

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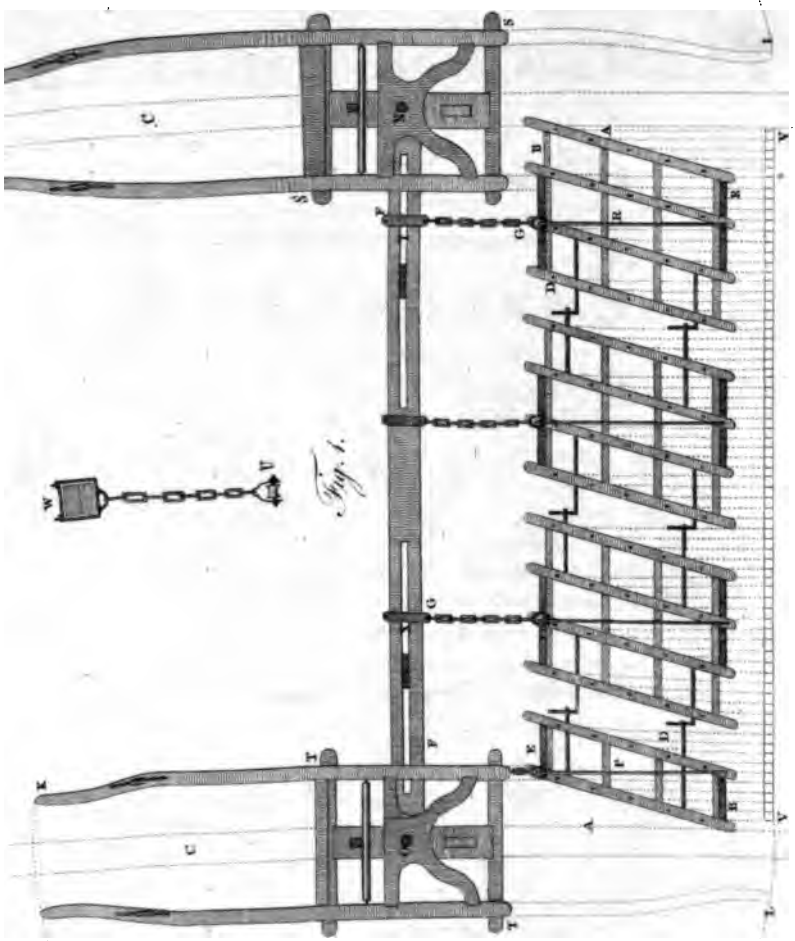
Fig. 1.
Fig. 2.

THE

FARMER'S MAGAZINE:

A

PERIODICAL WORK,

EXCLUSIVELY DEVOTED TO

AGRICULTURE,

AND

RURAL AFFAIRS:

1805.

Ye gen'rous Britons, venerate the PLOUGH,
And o'er your hills, and long withdrawing vales,
Let Autumn spread her treasures to the Sun. THOMSON.

VOL. VI.

Edinburgh:

PRINTED BY D. WILLISON, CRAIG'S CLOSE,

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1805.

THE

FARMER'S MAGAZINE:

MONDAY, 11th FEBRUARY 1805.

(Nº. XXI.)

BRANCH I.

ORIGINAL COMMUNICATIONS.

Non generant aquilæ columbi.

Ye ſons of Ceres, rear the pureſt ſeed;
Nor vainly think that owls will eagles breed.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Selection of Grain for Seed.

IN the many intereſting communications ſubmitted to the public through the medium of your Magazine, little, if any thing, has been ſaid on the ſubject of preſerving pure and unblended valuable varieties of the different ſorts of grain and roots adapted to the climate and ſoil of the Britiſh iſles; or on that of ſelecting new varieties of theſe genera of grain, &c. as they appear poſſeſſing qualities deſirable by the agriculturiſt. Every attentive obſerver of corn culture ſees the importance of this ſubject to the whole realm. The attention of the farmer it more particularly claims. In blended crops ripening muſt be unequal, conſequently the produce inferior in apparent quality, as well as in real, to the perſon manufacturing it; and even ultimately to the conſumer. The quantity, it is apprehended, muſt alſo be leſs than where one valuable variety of grain is cultivated on the ſame ground; for, where blended grain is ſown, part of the ſoil is often occupied with ſome ears that, being too late, have not time to arrive at perfection, and with others that, being too for-

ward, drop part of their ſeeds before the crop is cut, or ſhed them in the act of reaping it.

Perſeverance in cultivating grain blended, in however ſmall a degree it may be ſo, is attended with *increaſing loſs*; for, in a few ſeaſons, from the diſſemination of the *farina fœcundans*, the original deſirable variety vaniſhes among the multitudes that have ariſen, forming a motley mixture altogether unworthy of occupying a place in the expenſive cultivation of the corn-lands of this country. Several eminent agriculturiſts of the preſent day, have made ſelections of grain and roots, that have afforded decided advantages to thoſe who have obtained and cultivated them. To preſerve any variety * of any of the genera of cultivated grain *correctly* pure or unblended, where there is a great extent of ſowing, is what perhaps cannot be effected; though purity may be approached ſufficiently near for every valuable purpoſe. This is only to be accompliſhed by recurrence to firſt principles as often as poſſible; for, if one ſeaſon is neglected, years may elapſe before *the point ſet out from* is regained. New or different varieties of the ſame genus of grain will appear in the produce, where no blending was apparent in the ſeed corn.

Although different varieties will not, it is imagined, ariſe from the ſame individual grain the firſt ſeaſon it is planted, it is preſumed they may from diſtinct grains even of the ſame ear. This being admitted ſhows, not only the indiſpenſable neceſſity of continual, ſucceſſive, annual ſelection, but alſo of extirpation † of all ears *as weeds*, as ſoon as they ſhoot out of the ſtem, and diſcover ſuſpicious appearances. If ſelected ‡ corns are thraſhed with a machine, it will much defeat the purpoſe intended to be accompliſhed, eſpecially if more than one variety of the ſame ſort of grain is cultivated on the ſame farm. That beautiful and valuable oat, the potatoe-oat, is already much blended in general, and threatened with being abandoned for having degenerated; a weakneſs vulgarly imputed to all ſorts of grain, frequently to excuſe the indolence of the cultivator.

Thoſe beſt acquainted with corn-huſbandry conſider it very local, and that any conſiderable variation in climate and ſoil requires different management, in many reſpects; and the adoption and ſelection of varieties of the different genera of cultivated grain, ſuitable to particular ſituations, has not formed the leaſt prominent

* By a variety is meant a particular ſpecies of any of the genera of grain.

† This operation is propoſed to be performed only on the immediate produce of the ſelected ears of any variety of grain thought worth preſerving by ſeparate culture.

‡ Theſe may be rubbed or beaten out by the hand with a beetle, on a ſheet.

minent feature in the management of ſeveral of the firſt agriculturiſts of the preſent day.

The breeds of domeſtic animals for ſlaughter, as well as for other purpoſes, have been much improved in modern times. From the high-mettled racer to the Devonſhire donkey; from the Tees-water ox to the Chineſe gunter;—in a word, from the ſtud of the peer to the ſty of the diſtiller, all have received their ſhare of attention, and coſt much expence. Blood horſes have covered at fifty guineas. It is ſaid twelve hundred guineas have been given for the ſeaſon of a ram. Even dogs are advertiſed to ward bitches, at an eminent ſporting ſhop in Yorkſhire, at ſeven guineas a bitch. And the writer aſks pardon of a certain national inſtitution, if it did not offer a cool two hundred of the ſame coin, for a male tortoiſe cat.

With all theſe things, and many more ſtaring them in the face, it is to be hoped that modern corn-farmers will beſtir themſelves a little, and not ſuffer the breeders of live-ſtock, even thoſe of blue dogs and tortoiſe cats, totally to loſe ſight of them in the race of improvement. That the quantity and quality of bread-corn being of the firſt importance to the community in which they live, they will conſider a few ſhillings well ſpent in obtaining a valuable variety of any of the genera of cultivated grain, and a little time well beſtowed on ſecuring it.

From what has been ſaid, may it be concluded, that the value of the beſt exiſting varieties of grain, roots, and fruits, adapted to particular ſoils and ſituations, is either not yet ſufficiently known, or if ſo, not admitted and appreciated, by the agriculturiſts of Great Britain and Ireland in general; that it is of much importance to cultivate *thoſe unblended varieties only* of the different genera of grain, &c. that are known beſt to ſuit the climate and ſoil of a farm—that regular, ſucceſſive, annual ſelection, and ſeparate culture, are eſſential to preſerve thoſe varieties, or to obtain new ones, if any appear worthy of notice—that the occupier of land, being generally the beſt judge of what varieties of grain, &c. are moſt ſuitable to his ſituation, would, probably, find his account in perſevering in a regular, ſimple ſyſtem for obtaining and ſecuring thoſe varieties.

MISO-MIXIS.

TO

* Vide Daniel on Britiſh Sports, vol. i. *apud finem.*

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Obſervations on the Working of Oxen by LORD SOMERVILLE; *with Anſwers to Queries on that Subject.*

SIR,

YOU were good enough to think a few lines I had the honour of addreſſing to you ſome months ago worth inſertion in your Magazine; and as a correſpondent, Vol. v. p. 296. has expreſſed a wiſh to learn ſome further particulars on the ſubject of working oxen, which, although formerly hinted at, were not detailed at length, only becauſe the ſubject has been treated on elſewhere, I hold myſelf bound to comply with a requeſt ſo properly made, and I have great pleaſure in being able to do it.

Your correſpondent puts ſome queſtions on the ſubject, and then concludes by ſaying, that, if they be anſwered ſatisfactorily, the queſtion in favour of oxen, as beaſts of labour, will appear to receive a complete deciſion—Firſt, as to the nature and ſituation of the land (and the ſubſoil), whether it be ſtony or ſteep, or a clay. My own ſoils, of which the queſtion is aſked, are, firſt, a loam on a limeſtone rock, free fine working land, if at all level ſtone braſh tending towards a gravel and clay.

The ſurface of the two firſt is in general extremely broken and ſteep; the laſt is nearly flat, except in certain caſes. The ſteepneſs of the ſurface can hardly be deemed hoſtile to labour of oxen, when it is conſidered that thoſe counties, where oxen have been and will ſtill be worked, are broken in their ſurface; many of them ſtony in a very great degree, yet very well farmed; for inſtance, Hereford, Suſſex, and Kent. Many diſtricts of thoſe counties are on a very ſtrong clay, the wealds of Suſſex notoriouſly ſo, part of Kent, much of the vales of Hereford and Leominſter, and the country around Bridgewater, the grazing marſhes of which equal any in quality, and all a very deep clay.

As to the next query, Whether they do not poach heavy land more than horſes?—The foot of the horſe is concave, the conſequence of which is an adheſion, or rather a ſuction, which impedes his action very much, and from its form muſt neceſſarily compreſs more than any other ſhape whatever. Now, the foot of the ox is cloven; it enters the land diſtended by the weight and action of the animal, and comes out contracted, by which its egreſs is comparatively eaſy, and conſequently the labour or exertion diminiſhed, and the injury done to the land is leſs. In proof of which, let horned cattle wander in moſſy and unſound land

land as much as they will, and there is hardly an inſtance of their ſticking in it, where horſes would infallibly require to be drawn out, or would be loſt in it. This reſults from the formation of the feet, and is a concluſive argument as to the aptitude of horned animals to labour on deep land.

We come next to the ability of oxen to do extra labour, when not fully employed in plough. My own oxen cannot be ſpared from conſtant labour; and, except on Sundays, or in a very hard froſt, there is hardly a day that they lie ſtill; but, if they did, there is a profit attending their growth which is moſt materially in their favour, ſhould a week or ten days' reſt occur. This profit we know to be equal, on the average, to 20 per cent. on their value.

Animals which can do hard days' work for two months in the year muſt be ſeaſoned to labour, and conſequently would do it through the whole year, if required; more eſpecially as we know that labour not overdone adds to the growth of any animal. The principle which gives the premium for working cattle at the March ſhow in London, is, that certificates of the greateſt work done from the 1ſt of January to the 25th of April, previous to their being turned out to graze, are ſufficient; becauſe, if the work is trifling, the certificates mark that it is ſo, and if that work was done on the ſpur of the occaſion, and the animals previouſly unſeaſoned to labour, it would put them out of condition to graze for the premium of that ſeaſon at leaſt, if not deſtroy them altogether. Hard labour cannot be done by fits and ſtarts, without injury to any animal whatever: take, for inſtance, the exerciſe of the hunter, or the training of the race-horſe, or the endleſs ſlavery of the hard run poſt-horſe.

We are now to conſider them as equal to carry on road-work. That my own oxen do a very great deal of work on the road is certain, becauſe we carry much lime for manure. We drive at the rate of 20 hogſheads, *i. e.* 100 buſhels Wincheſter meaſure per acre. We carry as much dung as we can, and conſiderable quantities of timber; for the growth and waſte of it is there very conſiderable. In addition to which, our farms lie much divided, which makes a moſt eſſential difference in labour, and the roads are ſtony beyond meaſure. The general practice of the county is to work oxen on the road, ſome more and ſome leſs; ſo it is even in the moſt hard and ſtony diſtricts, as in Glamorganſhire, in Herefordſhire, in Suſſex, and in the Eaſt-Riding of Yorkſhire. The timber-waggons, which carry timber from the vale of Pickering, in Yorkſhire, to Scarborough, work two oxen; the oxen do not work before to aſſiſt the horſes, but in the timon or pole behind, and on them, therefore, the dependence is to conduct

great loads in very hilly and ſtony roads; a deciſive proo they can bear road-work, even of the ſevereſt nature.

We now come to the laſt query, Whether they be liabl lamed as horſes? to which, we truſt, the following is a mo factory and deciſive anſwer: In the 20 years I have worked I can hardly remember where any one ox has been laid b lameneſs for 48 hours together; and if an inſtance has occu has occurred but rarely; nor do I remember to have l ſingle ox or ſteer in labour, or ever had to replace one failed in work.

The moſt common cauſes of temporary lameneſs in ox ſlight ſtrains on ſtony roads, or a ſtripping between the ſomewhat ſimilar to the foot-rot in ſheep, and ariſing indee the ſame cauſe, namely, the corroſive properties of the dews which fall towards autumn.

Theſe facts might have been ſtated before, but two cor tions of the powers of theſe admirable animals would hav wanting, which may now be ſupplied. The firſt is, that, this ſpring claimed the premium from the Bath Society bour done by oxen in 1803—three competent perſons we to inſpect and report on the ſpot. The particulars of wh far as regard the claim to this premium for 1803, I do n at liberty to ſtate, becauſe it is not yet finally adjudged, a cauſe that Society has a juſt claim to the publication o papers in its own volumes, the circulation and character of are well known. But, for your information, I feel myſel berty to ſay, that, in addition to the report itſelf, they di as follows: That notwithſtanding the quantity of labour and the failure of the green crops of 1803, owing to the dr by which our oxen were compelled to be put on ſtraw a in the beginning of September (in many places earlier that ſince January 1. 1804, 22 acres of peas, one plough 50 acres of barley, two ploughings—60 acres of turnip 55 of which were 2 ploughings—in all 237 acres, had b boured by 16 oxen and ſteers, a proportionate number of were too young to do much, yet that they were, at that namely, in May laſt, in very good working condition, might have been added, very high in fleſh.

Another is, that, hard as my own oxen labour throu year, and during the greater part of their growth, yet th the good fortune to gain the firſt prize, or L. 30, at the Ba cattle-ſhow in March laſt, where there were 12 or 14 yok lified to compete for it. Had my oxen in general been i by over work, they could not have come to a public exhi after 19 months grazing, with ſuch credit to themſelves a

have done for three years paſt, and, it is to be hoped, will continue to do.

Mr Weſtcar, the celebrated grazier of Hereford oxen, was heard to ſay of a very fat ox then on ſale at Smithfield: 'You think this ox has had nothing in its life to do except to get fat, but he has earned L. 30, beſides his keep, in hard labour, before I grazed him.' Such, or very nearly ſuch, is the hiſtory of every ox which this moſt celebrated judge of cattle brings to market.

Having noticed all that was required of me, I cannot lay down my pen without obſerving, that although I have ſtated what can be and is done in other counties, yet that I do not adviſe the uſe of draught-oxen in every county; indeed, in no county, unleſs the breed be active and hardy, and unleſs there is a determination to do every juſtice to them: whether they will be generally applicable to labour in Scotland will ſoon be brought to the proof: And here I may be allowed to notice the effect of the exhibition of cattle at the laſt meeting of the Cheviot Society at CampTown, where a bull and two cows, of the Devon breed, were produced by Mr Andrew Blackie of Holydean; a bull and two cows, of the Hereford breed, by Mr Rutherford of Edgerhoun; and a bull and two cows, of the beſt Weſt Highland breed, by Mr J. Riddell of Timpindean, from the ſtock of the Duke of Argyle.

Pains were taken in ſelecting theſe cattle, and, in the hands of ſuch men, there can be little doubt that every juſtice will be done to them, whether as dairy ſtock, or with a view to that competition, both in labour and feeding out, which muſt naturally ariſe from ſelection of theſe moſt excellent breeds of ſtock brought into the ſame neighbourhood: they were much noticed and admired, not only by the farmers and landholders intereſted in this queſtion, but alſo by the herds and ſervants aſſembled.

I have the honour to be,

Langlee, 25th Sept. 1804. SOMERVILLE.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Comparative Expence of Farm Labour, &c. in 1790 *and* 1804.

SIR,

I OBSERVE, in your 19th Number (vol. 5. p. 338.), 'A ſtatement of expence attending the culture of corn in Norfolk, in 1790 and 1804, preſented to the Committee of the Houſe of Commons,' which may be correct ſo far as it goes, but conveys, in my humble opinion, an inadequate view of the ſubject meant

to be elucidated. On that account I take the liberty of sending to you a copy of the statement sent to the Committee from East Lothian, which embraces every branch of the Committee's inquiries, and satisfactorily proves, that the late alteration upon the corn laws of this kingdom was absolutely necessary to the prosperity of British agriculture. Perhaps, after all, protecting duties, as suggested in the observations which follow the statement of expences, might have answered the purpose equally well, at least the trade in corn would thereby have been put upon a more steady footing; but be this as it may, so long as the price of labour, and the amount of public burdens, are so much higher in Britain than what they are upon the Continent, regulations of one kind or other are imperiously called for, in order that the home cultivator may not be undersold in his own natural market. Whether the increase of rent can fairly be taken into account, may be questioned by some people. To the farmer, who pays it, the increase is precisely the same thing as if it was money expended for other purposes; though, in forming a general regulation, I am not altogether sure whether its weight ought to be thrown into the scale. A postscript, not included in the statement, is therefore added, which will show how far the expence of raising corn is augmented by the increased value of labour and public burdens since 1790, which is so plain and distinct, that every one of your readers may be enabled to judge of its correctness. I am, Sir, your's, &c.

A FRIEND TO AGRICULTURE.

Statements of Expence attending the Culture of Corn in East Lothian 1790 and 1804.

STATEMENT, No. I.

1790. Average rent of good land, 30s. per Scots acre.
1804. Average rent of good land, 60s.

N. B. It is not an easy matter to ascertain the average rent of land; but one thing is assuredly true, that more land is now set at L. 3, than what, in 1790, was set at 30s.

1790.	Commutation money for road-work,	20s. per plough
1804.	Commutation money for ditto,	30s. per ditto
1790.	Labourer's wages, - -	10d. and 12d. per day
1804.	Labourer's wages, - -	16d. 18d. and 20d.
1790.	Lime, per boll of six bushels,	11d. and 12d.
1804.	Lime, per ditto, - -	20d. and 22d.
1790.	Dung, per cart-load, -	2s. and 2s. 6d.
1804.	Dung, per ditto, - -	4s. 4s. 6d. and 5s.

1790.

1790.	Harveſt-work, - - -	9d. 10d. and 14d.
1803.	Harveſt-work, - -	14d. 18d. and 2s.
1790.	Turnip hoeing, and other field-work, by boys and girls, - -	5d. per day
1804.	Ditto. - - -	7d. and 8d.
1790.	Ale for harveſt-work, per caſk,	5s.
1804.	Ditto for ditto, -	8s. and 9s.
1790.	Smith-work, per plough, -	30s.
1804.	Ditto, per ditto, -	50s. and 60s.
1790.	Wright-work, per plough, -	25s.
1804.	Ditto, per ditto, -	40s.
1790.	Sadlery-work, per plough, -	15s.
1804.	Ditto, per ditto, -	30s.
1790.	Price of cart-horſes, -	L. 18 and L. 22
1804.	Ditto of ditto, - -	L. 30 and L. 35
1804.	Window lights doubled, owing to the way they are now aſſeſſed,	
1790.	Horſe tax, - -	None
1804.	Horſe tax, - -	12s. 6d. each
1790.	Property tax, - -	None
1804.	Property tax, - -	6d. per pound of rent

N. B. The property-tax, during a nineteen years' leaſe of a farm that pays L. 1000 of rent annually, will abſorb L. 475 of the tenant's profits; or, in other words, make him that ſum poorer at the end of his leaſe than he would otherwiſe have been, independent of the intereſt thereupon, which, taken according to compound calculation, would more than double this eſtimate.

STATEMENT, No. II.

Expence of a Ploughgate of Land for one year, ſuppoſing 50 *Acres, Scots Meaſure, to be the Quantity of Land therein contained.*

In 1790.

Rent, at 30s. per acre, - -	L. 75	0	0
Intereſt on capital ſtock—ſay on L. 150, -	7	10	0
Allowance on horſes for tear and wear—ſay 12½ per cent. on L. 40, - - -	5	0	0
Smith, Wright, and Sadler, - -	3	10	0
Ploughmen, - - - -	18	0	0
Labourers, per plough, - -	4	0	0
Incidental work, per ditto, - -	5	0	0
Harveſt-work and board, per ditto, - -	15	0	0
Road tax, per ditto, - - -	1	0	0
Window lights, on an average, per ditto, -	0	5	0
	L. 134	5	0

In 1804.

Rent, at 60s. per acre,	L. 150	0	0
Intereſt on capital ſtock—ſay on L. 200,	10	0	0
Allowance for tear and wear on horſes—ſay 12½ per cent. on L. 60,	7	10	0
Smith, Wright, and Sadler,	6	0	0
Ploughman,	25	0	0
Labourers, per plough,	6	0	0
Incidental work, per ditto,	7	10	0
Harveſt-work and board, per ditto,	25	0	0
Road tax, per ditto,	1	10	0
Window lights, on an average,	0	10	0
Horſe tax, per plough,	1	5	0
Property tax, per ditto,	3	15	0
	L. 244	0	0

From the above it appears, that the expences of cultivating a ploughgate of land in 1804 (rent included) exceed thoſe of 1790 in no leſs a ſum than L. 109, 15s. without taking into account the additional money laid out in purchaſing lime and dung, the repairs of houſes and fences, the private expences of the farmer, or the maintenance of himſelf and family; and, as nearly the whole of this increaſed expence, rent excepted, falls upon the produce of 30 acres of land ſuppoſed to be under corn crops, it alſo appears that the additional charge upon each acre under corn is L. 3, 3s. or thereby, after deducting L. 15 as the increaſed rent of 10 acres under graſs. If we ſhall ſuppoſe that the diſpoſable produce amounts to five bolls and one half per acre, on an average, after ſeed, horſe corn, and what is uſed in the farmer's family, are deducted, or, in other words, that 165 bolls are diſpoſed from each ploughgate, then every boll of diſpoſable corn is now raiſed by the farmer at an increaſed expence of 11s. 6d. or thereby, above what it coſt him in 1790. From all which things, a reviſion of the corn laws muſt appear abſolutely neceſſary, in order that the cultivators of Britiſh ſoil may be able to cope with thoſe of foreign countries, even in the home markets. Exportation may now be conſidered as out of the queſtion. Indeed, the ſimple way of correcting the evil which oppreſſes agriculturiſts, is to repeal every one of the corn laws, and lay protecting duties upon foreign grain imported into this country, calculating theſe upon fair and liberal principles, ſo as the difference in the value of rent, labour, and public burdens, may at leaſt be equalized by ſuch duties. Then the Britiſh farmer would be on an equal footing with

with his brethren abroad, which at this time is certainly not the caſe.

P. S. If rent is deducted from the increaſed expences of a ploughgate of land, the balance remaining will be L. 34, 15s; and laying this ſum upon the diſpoſable produce, it appears that the increaſed value of labour and public burdens, taken by themſelves, amount to 4s. 2d. upon each boll of corn carried to market, under the ſuppoſition that 30 acres of corn are the average number cultivated by one plough, and five bolls and one half the quantity of diſpoſable produce from each acre.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Analyſis of Limeſtone.

SIR,

IN Number 18th of your Magazine (6th February 1804), I obſerved a communication, under the ſignature of A. S., on the importance, and modes, of analyſing lime. And in Number 19th (13th Auguſt 1804), I obſerved two communications by Sir George S. Mackenzie of Coul, Bart. which are meant as a refutation of the mode of analyſis propoſed by A. S.; and another mode, in Sir George's apprehenſions better calculated to anſwer the purpoſe, is propoſed in its place.

On theſe communications I beg leave to offer a few remarks.

1. I cordially agree with A. S. on the importance of having all limeſtones and calcareous ſubſtances throughout the kingdom analyſed, ſo far, at leaſt, as to aſcertain the proportion of calcareous matter they contain, which is the only point connected with practical utility. In addition to the reaſons pointed out by A. S. for analyſing calcareous ſubſtances, I beg leave to ſuggeſt another; that when a new rock of limeſtone, or a bed of ſhell-marl, or clay-marl, or ſtone-marl, are diſcovered, it is much eaſier to aſcertain by chemical analyſis, whether they may be wrought with advantage, than by any other mode whatever. I have known people lay out conſiderable ſums in running drains, opening quarries, building kilns, providing fuel, &c. &c. to get poſſeſſion of a rock of limeſtone, which, after all their labour, proved to be good for nothing. In all caſes where I was ſo fortunate as to diſcover any of theſe ſubſtances, I aſcertained their value by chemical analyſis; and where the diſcovery was followed out, the practical application of it has correſponded with the analyſis. In ſome of the Hebridian Iſles, I

found the people were in the practice of bringing ſhell ſand from bays and creeks on the main-land, at the diſtance of from 60 to 80 miles, to manure their land. By analyſis I found that the ſhell ſand, in many of the creeks and bays along their own ſhores, was much better adapted to ſerve their purpoſe than what they were bringing from ſo great a diſtance.

But theſe things are only ſtated in corroboration of what A. S. has advanced reſpecting the utility of analyſing calcareous ſubſtances. He has deſcribed an experiment of making lime into mortar, as a mode of analyſing limeſtones. I do not chooſe to enter into that point at preſent; but ſhall only obſerve, that were the making of mortar conducted on the principle of ſtrict chemical analyſis, I entertain no doubt but it might be made harder than flint, and leſs frangible than the moſt perfect columnar baſalt.

2. The point on which I propoſe chiefly to make remarks is the mode of analyſing limeſtones propoſed by A. S. viz. by ſeparating and weighing the refuſe, and deducting its weight from the original weight of the limeſtone operated upon. This mode of analyſis Sir George has choſen to controvert; and I beg leave to offer remarks upon it, and ſhall afterwards conſider the mode he propoſes.

I would not have troubled you with theſe remarks, had I not felt ſome little intereſt in this ſubject. The mode of analyſing limeſtones propoſed by A. S. I have reaſon to believe, was firſt ſuggeſted by me. After trying it during ſeveral years, I gave a ſhort deſcription of it in an Eſſay on Manures, publiſhed by the Board of Agriculture; but who mangled and mutilated that, as well as ſeveral other parts of my Eſſay, *more ſolito*. I do not pretend to ſay that I was the firſt perſon to whom this mode of analyſing calcareous ſubſtances had occurred, but that I had never heard mention of it, nor ſeen it in any book.

Sir George objects to the uſe of common muriatic acid in the analyſis of limeſtone, becauſe it is apt to be adulterated by a portion of ſulphuric acid, which, forming a nearly inſoluble compound with lime, would detain a part of it among the refuſe. If the farmer procures his acid from a laboratory which is uſed to furniſh agents for chemical experiments, it is not likely to be ſo impure as to occaſion any ſenſible error in the reſult. But ſuppoſing the muriatic acid to be adulterated with a hurtful proportion of ſulphuric acid, muriate of varytes, ſlowly and cautiouſly dropped into it, will carry all the ſulphuric acid to the bottom, and the purified muriatic acid may be decanted off.

Along with the acid, the farmer ſhould be furniſhed with an accurate balance, ſuch as are commonly uſed for weighing gold,

and

and weights conſiſting of 100 equal parts. A wire twiſted upon a cylender, and cut acroſs in a line parallel to the axis of the cylender, makes very excellent weights; and they may be halved, quartered, and reduced, to any fraction of a part. Where theſe are wanting, patent ſhot furniſhes weights of ſufficient accuracy.

A portion of the limeſtone being pounded, or rather reduced to ſmall fragments, and dried before the fire, 100 parts of it muſt be weighed, and put into a tall glaſs. The acid, conſiderably diluted, ſhould be added in ſmall portions, and, towards the concluſion, the ſediment ſhould be ſtirred with a glaſs ſpatula. Care ſhould be taken that, after the ſolution is completed, the acid ſhould be as little in exceſs as poſſible. For, while the acid has lime to act upon, it will not combine with iron, clay, or other ingredients in the compound; and the dilution of the acid renders it leſs liable to combine with theſe ingredients.

If, notwithſtanding all due care, there be reaſon to ſuſpect that the acid has combined with a portion of iron, or other ingredient, dilute with warm water, and drop in a portion of ammonia, which will carry down metallic oxyds, or other ingredients that may have combined with the acid, without affecting the lime.

Meanwhile a piece of good filtering paper ſhould be made into a conical form, dried before the fire, weighed, and its counterpoiſe allowed to remain in the ſcale. This filter being put into a fluted glaſs funnel, placed in the mouth of a clean wine decanter, ſhould have the whole ſolution, with every particle of the ſediment, waſhed into it; and the ſediment ſhould be waſhed by repeated additions of warm water, until every particle of the ſalt of lime is carried through into the decanter, leaving the ſediment upon the filter. In waſhing the ſediment, too much water ſhould not be added at a time, becauſe its incumbent preſſure may force ſome particles of the ſediment through the paper. If any particles ſhould get through, from too great a weight of water, they ſhould be allowed to ſubſide to the bottom of the decanter; and the clear liquor being poured off, they ſhould be returned to the filter, and waſhed as before.

We have now got all the lime in ſolution in the decanter, and every particle in the maſs, that was not lime, left upon the filter. It therefore only remains to dry the filter and its contents before the fire, and to weigh it. The number of parts by which the filter now exceeds its counterpoiſe is the weight of the refuſe; which being deducted from 100, the original weight of the limeſtone, the remainder is the proportion of carbonate of lime contained in the maſs.

If the farmer chooſes, he may proceed to confirm his analyſis by

by ſyntheſis. To do this, he has only to enlarge the volume of his muriate of lime by boiling water, and precipitate the lime by a purified ſolution of carbonate of pot-aſh. The decanter being kept warm near the fire, the precipitated carbonate of lime will ſubſide to the bottom. The clear liquor being decanted off, the lime, which is now the ſediment, muſt be thrown either upon the ſame or a ſeparate filter, waſhed and dried. If its weight, added to that of the refuſe, amounts to 100, he may be certain the proceſs has been accurately conducted.

3. It is of very little importance to the farmer to know the ſpecies of extraneous matters which enter into the compoſition of his lime; but it is of great importance to know their groſs amount, or the proportion they bear to the maſs, for reaſons which A. S. has very properly ſtated. The moſt common alloy of limeſtone is ſand, or quarty and clay. When the limeſtone operated upon has only been broken into ſmall chips, the particles of ſand retain their original ſize, and their proportion in the alloy may be known by waſhing off the clay, and weighing the ſand that remains.

Lime that contains much ſand eaſily ſlacks by expoſure to the air; but that which contains much clay often requires to have the water added to it while it is red-hot; becauſe the clay forms a paſte which reſiſts the penetration of the water. Sandy limeſtone is reckoned beſt for mortar; and clay-alloyed limeſtone often contains magneſia, or magneſia combined with ſulphur, which efflorefces into ſulphate of magneſia, or Epſom ſalt I have ſometimes obſerved that the limes of theſe different ſpecies encourage the growth, the one of one ſpecies, the other of another ſpecies of weeds.

But ſtratified limeſtone often contains coal-tar, and particles of carbon interſperſed through it; and the ſtratified limeſtones of Caithneſs and Orkney contain not only various proportions of coal-tar, but even numerous pieces of coal interſperſed through their maſs. It would be wrong in the farmer to ſet down theſe ingredients as refuſe in his lime, becauſe they are wholly conſumed in burning the ſtone, and, as far as they go, they operate as fuel to aſſiſt the burning. When theſe ingredients exiſt in limeſtone, they ſhould either be deflagrated with nitre before the ſtone is analyſed, or the ſtone may be analyſed before it is burnt. The ſame remark applies to ſulphur, which is either expelled in burning the ſtone, or a part is acidified, and forms, with the lime, a ſmall proportion of gypſum.

But limeſtone often contains magneſia, and other earths beſides ſilex and alumina. It often contains gypſum, mica, zeolite; and moſt frequently oxyd or carbonate of iron, and other metals; not

not unfrequently alſo it contains pyrites of iron, of copper, or other metals.

When limeſtone is alloyed with a variety of theſe ſubſtances, and we wiſh to know their relative proportions, recourſe muſt be had to the more complex and intricate analyſis deſcribed by Sir George Mackenzie. But ſuch inveſtigations are foreign to the practical purpoſes of the farmer.

The only caſe where an accurate inveſtigation of all the matters which enter into the compoſition of limeſtone may be attended with practical utility, is where it is propoſed to compound mortar on ſcientific principles, and to aſcertain the quality and quantity of ſand neceſſary to give it the greateſt hardneſs and durability. I have ſeen many ferruginous limeſtones, which, I am ſtrongly impreſſed with a belief, would make better mortar for building under water, than that which is mixed with puzzoland, or the refuſe of iron-works. In ſuch limeſtones the iron muſt be more intimately mixed than can be effected by mechanical means, and hence muſt operate more powerfully. There are various ſtrata of limeſtone of this deſcription on the north-eaſt ſhore of the iſland of Arran, from the Currie to beyond the Cock, which are of a florid blood or brick red-colour, very compact, and of ſmooth fracture, and ſeem to contain little other alloy but oxyd, or carbonate of iron. I wiſh the Directors of the Caledonian Canal would pay attention to them. If their proportion of iron be ſufficient, they will make a very ſuperior cement for their locks and bridges; and, even though a ſmall addition of iron may be neceſſary, the ſubaqueous cement muſt ſurpaſs that which has all the iron combined mechanically.

It may only be neceſſary to add, that, for the proceſſes here deſcribed, diſtilled water anſwers beſt. But, where this cannot be procured, any water that is free of ſediment, and that contains no ſalt capable of being decompoſed during the proceſs, will anſwer equally well.

By attending to what has been ſuggeſted, any farmer may eaſily aſcertain the proportion of alloy or refuſe contained in different limeſtones or marls; and the analyſis of the refuſe itſelf, ſo as to aſcertain the proportions of the primitive earths or metals which enter into its compoſition, is, to him, an object of no practical utility.

4. I propoſed to offer a few remarks on the mode of analyſis ſuggeſted by Sir George, pp. 266. 267. of No. 19th, founded on the weight of carbonic acid gas, that eſcapes from limeſtone during its ſolution in pure muriatic acid. This mode was firſt propoſed by the celebrated Dr Black, and reſts on the ſuppoſition that corbonate of lime always contains the ſame invariable proportion

portion of carbonic acid gas: a ſuppoſition that farther experience ſeems to have weakened, if not wholly overthrown. I have met with ſeveral ſpecies of indurated chalk and other limeſtones, where the ſilex and clay ſeemed to have formed a ſort of chemical union with the lime like indurated mortar, to the excluſion of part, at leaſt, of the carbonic acid; and thus ſuch ſtones emitted very little effervescence during ſolution in acids. But not to reſt any part of the argument on my own authority, I beg leave to obſerve, that chymiſts of the greateſt accuracy and celebrity, who have analyſed pure carbonate of lime, where no chemical attraction for other earths can be ſuppoſed to have excluded the due proportion of carbonic acid, have differed conſiderably in the proportion of carbonic acid gas which this carbonate yielded. Thus, in Dr Thomſon's Chemiſtry, laſt edition, vol. ii. p. 392. we find the following analyſis of carbonate of lime.

Bergman.		Kirwan.
34		45 acid.
55		55 lime.
11		0 water.

Dr Thomſon.
50 acid and water.
50 lime.

The Doctor obſerves in a note, that "The water ſeems, in pure cryſtallized carbonate, to amount to 3 or 4 per cent:" but he expreſſes a difficulty in aſcertaining its exact amount; though we ſhall take the extreme, or 4 per cent., for the proportion of water, which leaves 46 per cent. of carbonic acid. Thus the carbonic acid of Kirwan exceeds that of Bergman no leſs than 11 per cent; Dr Thomſon's acid exceeds that of Kirwan 1 per cent. and that of Bergman 12 per cent. I think it much more natural to ſuppoſe that the proportions of carbonic acid and of water of compoſition in pure carbonate of lime, admit of conſiderable variations, than that chymiſts of ſuch rigid accuracy ſhould have been miſtaken. It follows, therefore, that any calculation of the proportion of lime, contained in a maſs even of pure carbonate of lime, from its loſs of weight during ſolution in pure muriatic acid, muſt be liable to very great errors. But, in compound limeſtones, the errors muſt be multiplied almoſt to infinity, for in theſe ſtones the different earths and oxyds of metals are more or leſs united to the lime by chemical attraction, which only takes place in proportion as the quantity of carbonic acid combined with the lime is diminiſhed; or, as chymiſts would expreſs

expreſs it, the more the lime is reduced to the ſtate of a ſubcarbonate. But, as this admits of almoſt infinite degrees, it is evident that a calculation of the proportion of lime in theſe ſtones, from their loſs of weight during the ſolution, muſt prove in the higheſt degree fallacious.

But, in addition to this radical cauſe of error, limeſtones, and eſpecially clay and ſhell-marls, are often alloyed with carbonate of iron and other metals, or with carbonate of clay and other earths. Now, as ſuch a proportion of muriatic acid muſt be put into the bottle as will be ſufficient to expel all the carbonic acid from the maſs, it is evident that what eſcapes from iron, clay, &c. cannot be diſtinguiſhed from what eſcaped from lime; and hence all the matters which yielded gas of any kind will appear to be lime in the calculation.

Sir George ſeems aware of the error ariſing from the muriatic acid carried off during the operation. This error cannot be reduced to calculation, becauſe it depends on the rapidity or ſlowneſs of the ſolution. Some calcareous bodies diſſolve with ſuch rapidity, that the carbonic acid gas eſcapes like an exploſion, carrying with it a great proportion of the acid, while others diſſolve more ſlowly.

In fact, Sir George, in his ſecond Eſſay, vol. 5. p. 269. ſeems to have abandoned this mode of analyſis, and to have had recourſe to one ſimilar to that here propoſed. It is not my intention to enter into any criticiſm on the different ſteps of his analyſis, as I have no doubt but it was conducted with all the ſcientific accuracy for which he is ſo much diſtinguiſhed.

Having ſeen this ſubject ſtarted, all I mean is to explain more fully what A. S. only hinted at, and to point out an eaſy proceſs by which a farmer may judge of the comparative value of limeſtone and other calcareous ſubſtances, by aſcertaining the proportion of fixed matters in the maſs which are not lime. I conceive this to be of very great importance: but with regard to aſcertaining the various proportions of the primitive earths or of metals which enter into the compoſition of limeſtone, this is a matter of too much intricacy for ordinary farmers, and to them of no practical utility.

Sir George ſeems to deprecate anonymous attacks, and to wiſh that every perſon who writes on this ſubject ſhould ſign his name. I am ſure I have not the ſmalleſt intention of attacking one for whom I entertain ſo much perſonal eſteem, and whoſe high attainments in the phyſical ſciences entitle him to ſo much reſpect; nor do I think Sir George will view any thing I have ſaid as an attack upon him. I ſhall be extremely happy to have

my own errors pointed out by Sir George; and, that he may not labour in the dark, I beg leave to ſubſcribe myſelf

His and your obedient humble ſervant,

JAMES HEADRICK.

Edin. Nov. 1. 1804.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

The Queſtion conſidered, Whether Magneſian Limeſtone is pernicious to Vegetation?

SIR,

DURING two or three years paſt I ſeldom returned to this city, from my laborious peregrinations through the Highlands and Iſles, without having my ears perpetually ſtunned with violent invectives againſt the uſe of lime, which contains magneſia, as manure. Some zealous friends of mine (whoſe zeal exceeds their knowledge) ſuggeſted the propriety of analyſing all the limeſtone quarries in their vicinage, and, if found to contain a particle of magneſia, propoſed that they ſhould be ſhut up by act of Parliament, and prevented from poiſoning the crops in their neighbourhood.

In fact, among your agriculturiſts, the *magneſiæ-phobia* ſeems to be the order of the day: and they appear to be as much terrified at magneſia, as a helpleſs traveller, like me, is ſometimes at mad dogs.

My peregrinations having precluded me from peruſing any of the original publications which excited this magneſiæ-phobia, I beg leave to offer a few remarks on an Eſſay, ſigned TYRO, *Yorkſhire*, 1804. Vol. v, p. 272.

As far as I can learn, the magneſiæ-phobia commenced in Yorkſhire, and has ſpread by repeated undulations through the iſland, and has topſy-turvied ſtronger brains than mine.

1. The firſt remark I beg leave to make on this gentleman's Eſſay is, That he does not point out the ſtate or combinations of the magneſia, which produces ſuch dreadful effects. This queſtion I have repeatedly put to ſeveral of my friends, who were viſibly under the higheſt paroxyſm of the magneſiæ-phobia; but, whether from ignorance, or from the diſorder having reached their cranium, I never could draw from them any diſtinct anſwer. In one point only they all concurred, in expreſſing the greateſt horror and alarm at magneſia coming within a hundred miles of their land; and ſome, when they learnt that this deletereous ſubſtance was capable of combinations, became ſtill more alarmed leſt

it

it might be smuggled in upon them in a form which they had no means of detecting.

2. Your correspondent TYRO not only omits specifying the state of the magnesia which proves so hurtful to land, viz. Whether it is pure carbonate, or with what acid it is combined, but also neglects to mention the mode by which the solution of the limestone is effected. All I am left to gather on this point is, that the solution was effected in a way similar to that, the fallacy of which I have already pointed out in a preceding essay.

Whatever way his solution was effected, I can only say, that his *ammonia*, or *vol-alkali*, would throw down several other matters before it touched magnesia; and that his whole scheme of analysis appears liable to objections. I might enter into particulars in order to establish this assertion; but, not wishing to embark in any controversies remote from practical utility, I shall content myself with showing that magnesia, under certain combinations, is either harmless or beneficial to the growth of plants.

3. It must appear strange to any man endowed with reason, that magnesia, which is evolved by the putrefaction and combustion of (I may venture to say) all animal and vegetable substances, should operate as a poison to plants. How does this substance get into plants? doubtless by their roots. How does it get into animals? doubtless by feeding on plants which contain it? How does it get into animals which do not feed on plants? doubtless by devouring animals which feed on plants. The uses of magnesia in the vegetable and animal economy are yet unknown; but that its uses are great, may be inferred from this fact, that it always exists in both kingdoms, and often in considerable proportion.

4. I had long ago ascertained that many strata of limestone in Scotland, but especially those alloyed with clay, contained various proportions of magnesia. In these cases I always found the magnesia to exist either in the state of carbonate, or combined with sulphur; and not unfrequently existing in both these states in the same rock. When combined with sulphur, it effloresces into sulphate of magnesia, which often forms a hoary incrustation on the face of the rock. Yet the farmers, who used the lime of these rocks in great quantities, never entertained the smallest apprehension that it was injurious to vegetation.

5. I have analysed various coal ashes, and never failed to find in them sulphate of magnesia, and sometimes also subcarbonate of magnesia, both, not unfrequently, in considerable proportions. Yet coal ashes are applied to certain soils with very good effect.

6. Lord Dundonald having stated, in his Essay on Manures,

that peat-ashes contained pot-ash, to which he ascribed their virtues as manure, I was led to analyse peat-ashes in various places from Ayrshire to Caithness, in the hope that those who used peat-fuel might be able to furnish pot-ash like those who burn wood. I never was able to detect a single particle of pot-ash in the ashes of peats; but I never failed to find sulphate of magnesia, and frequently the sulphate and subcarbonate in large proportions. Those peats which yield white ashes contain most of these ingredients. Now, peat-ashes are universally used as manure, and mosses are often pared and burnt for the express purpose of manuring them with their own ashes. An efflorescence of sulphate of magnesia is often seen on *moss binks*, that is, the face of moss from which people had been cutting peats.

7. In the Essay on Manures, referred to in my former communication, I described a species of schistus commonly known under the name of *blaes*, which effloresces into sulphate of magnesia by exposure to the air, and yields a considerable portion of sulphate and carbonate of magnesia from its ashes. I had observed three species of *schisti*, one containing sulphur combined with clay, which oxygenates into alum; another containing sulphur united to iron, which oxygenates into sulphate of iron; and the third contains sulphur united to magnesia, which oxygenates into sulphate of magnesia. Often all these three species are blended in the same mass; and I have had evidence of the hurtful effects of the aluminous and pyritical schistus, if laid upon land before the salts are extracted.

The magnesian schistus is commonly more hard and compact than the others, is of a dark blue or black colour, and very much resembles parrot or candle coal. I had once an opportunity of inspecting an experiment on a large scale with this schistus. Being set on fire by brushwood in very large heaps, it burnt with a smouldering flame, and left a great quantity of white ashes, such as the country people call *guests*. These were found to contain a very considerable proportion both of the sulphate and subcarbonate of magnesia. The ashes were laid upon the surface of land in pasture, and allowed to remain until the lumps mouldered down. When the land was ploughed, it yielded very extraordinary crops, and the effects seemed every way superior to those of a good liming.

I showed specimens of the sulphate of magnesia in fine crystals, and also of pure magnesia, to the late Dr Black, which were extracted both from the ashes, and from the efflorescence of this schistus, together with specimens of the materials from which they had been extracted; and that illustrious father of chemical science expressed an opinion that this schistus might be advantageously

tageously used for manufacturing the *magnesia alba* of the shops.

My ingenious friend, Dr Coventry, lately exhibited specimens of this schistus in his class, and mentioned that it was successfully used as a manure in some parts of Fifeshire.

I am aware that burnt clay operates on land as an alterative, and renders it more penetrable both by water and the roots of plants; and that the whole effect is not to be ascribed to the magnesia, or its salt. Lime operates both as an alterative, and as a direct manure. Being capable of combining with large dozes of carbonic acid and other compound gases, it retains these in the soil, and easily gives them over to the roots of plants; and being very soluble with an excess of carbonic acid, it may easily enter the plants along with it. I am inclined to think that magnesia always enters plants in union with some acid, because, in its pure state, it is insoluble in water. But, whatever be the mode by which it enters, it certainly does enter plants; and hence it makes part of their food, or is a manure. In the case under consideration, if we be not entitled to ascribe all the merit to the magnesia, or its combination with sulphuric acid, it must at least be admitted that the presence of these ingredients does no harm.

It is hardly necessary to mention, that the refuse of salt is often used as a manure. It seems now to be ascertained that marine salt contributes nothing to the nourishment of plants, those only excepted which grow in the sea. But the muriate and sulphate of magnesia, and other earthy salts, which abound in the refuse of sea-salt, certainly promote the growth of plants, and are hence applied as manures.

9. An ingenious friend of mine tried the pure magnesia of the apothecaries, and found that it neither did good nor harm to vegetables.

From all these facts I am warranted to conclude, that magnesia, in certain combinations, so far from being a poison, is a manure, or pabulum of plants; that, when pure, it is inert, doing neither good nor harm. If there be any combinations of magnesia which are hurtful to vegetation, it becomes those who have raised the cry against it to point out what these combinations are, or hold their tongues. It cannot be any state or combination of magnesia that has ever occurred to me in analysing limestones, or other substances used as manures; for, in all these cases, the presence of magnesia, instead of being hurtful, was apparently highly beneficial.—I remain,

Sir,

Your most obedient Servant,

Edin. Nov. 2. 1804. JAMES HEADRICK.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Account of a Pump without a Piſton, invented about thirty years ago by George Jardine, blackſmith in Glaſgow.

SIR,

I beg leave, through the medium of your uſeful miſcellany, to reſcue from oblivion an invention, ſuited to various œcomenical purpoſes, of an ingenious mechanic in Glaſgow, called George Jardine by profeſſion a blackſmith, who died 27 or 30 years ago. I have formerly endeavoured, through various channels, to introduce it to public notice; but hitherto it appears not to have attracted that attention which it ſeems to me to have deſerved.

It is a pump operating through means of the weight of the atmoſphere, like the common piſton pump; but it has no piſton, and is thus calculated to avoid, in a great degree, the reſiſtance of friction. I had acceſs to ſee a model of it at work in the inventor's poſſeſſion, about 12 months previous to his death: he was then thinking of obtaining a patent for it. As the inſpection granted me was confidential, and as it ſeemed probable that Jardine's heirs might proſecute his intention of applying for a patent, I did not conſider myſelf at liberty to make public what I knew, till within a few years bygone.

I know nothing of deſigning, and cannot furniſh you with a drawing. I conceive, however, that a diſtinct notion of the machine may be readily conveyed to ſuch of your readers as poſſeſs the ſlighteſt knowledge of mechanics, by a mere verbal deſcription: more particularly as the principle, of which the inventor availed himſelf, is readily ſuggeſted from the name beſtowed by the inventor (*The bellows pump*), from its analogy to a machine with which every one is familiarly acquainted.

To conceive an idea, then, of the *bellows-pump*: Let us ſuppoſe an ordinary wooden pump-ſtalk extending to the height of 28 feet above the ſurface of the water of the well (that being the height to which the preſſure of the atmoſphere will always raiſe water, even at the loweſt ſtate of the mercury in the barometer); the top of this pump-ſtalk environed with a ſtrong circle of braſs, upon which is a male ſcrew: immediately within the top of the pump-ſtalk is placed the box, with its valve opening upwards, through which the water aſcends, when a *vacuum* is formed within the pump-ſtalk by the operation of the *bellows-head*, which falls next to be deſcribed.

Suppoſe, then, a larger kind of bellows, of which the under board

board is made of thick plank, the air hole of ſize ſufficient to admit of being lined with a circle of braſs with a female ſcrew, by which the bellows-head may be ſcrewed upon the top of the pump-ſtalk. The narrow-end of the bellows is ſurrounded by a braſs ſcrew, upon which the ſpout or conduit for the water is ſcrewed. Within this narrow end is fixed a box, with a valve opening outwards; this box, in its outward face, may be cut in the ſlaunting direction of the line *a b* in the margin; ſo that the valve fixed at *a* may move, when impelled by the water from within the bellows, in the direction from *b* to *c*, and may fall down, by its own weight, upon the ſlaunting ſurface of the box.

To trace the operation: Let the bellows-head be ſcrewed upon the top of the pump-ſtalk, and the ſpout be alſo ſcrewed upon the narrow end of the bellows-head. When the upper board of the bellows is raiſed by its handle (as the external air cannot get admiſſion through the valve *a b*, juſt mentioned), a vacuum is formed within the pump-ſtalk, and the preſſure of the atmoſphere upon the water in the well forces the water up the pump-ſtalk, and into the bellows, the valve in the box at the top of the pump-ſtalk riſing up into the bellows-head. When the upper board of the bellows is preſſed down, the valve at top of the pump-ſtalk ſhuts, preventing the water in the bellows from returning down the pump-ſtalk; and the valve in the narrow end of the bellows opening outwards, the water is *forced* through the ſpout. I uſe the expreſſion *forced*, becauſe it is evident this pump poſſeſſes in it the principle of a *forcing-pump*, into which it is at once converted, by merely connecting to the ſpout the air-veſſel uſed in other forcing-pumps.

This pump would appear to get rid of all the friction of the piſton againſt the ſides of the box of the ſtalk of the common piſton pump. And there appears to be no re-action againſt the active force to counterbalance this advantage, excepting merely the reſiſtance ariſing from the unpliableneſs of the leather of the bellows, which, I ſhould ſuppoſe, would not be great after the leather becomes moiſt.

The bellows-pump (when acting merely by atmoſpheric preſſure) cannot indeed raiſe water, with certainty, above the height of 28 feet. If, however, the piſton pump raiſes it to a greater height, the exceſs of height of riſe is not effected by atmoſpheric preſſure, but at the expence of the acting force, in *carrying* a column of water, of the additional height, upon the top of the piſton: And, in the bellows-pump, it may be *forced* to the ſame height, at the very ſame expence to the active force (and that

without neceſſity of any air-veſſel), through a lengthened ſpout turned upwards, and carried to the ſame elevation.

As the pump-worker can apply more force in pulling the pump-handle *downwards* than in raiſing it *upwards*, it might be proper to give this favourable direction to his force by a compound lever, in working the bellows-pump as a common pump; in working it as a forcing-pump, he has the moſt favourable direction for the greateſt exertion required, from a ſtraight handle proceeding from the upper board of the bellows.

I might add, that the bellows-pump ſeems to poſſeſs the advantage of great facility of repair. If the bellows-head goes wrong, it can inſtantly be unſcrewed and replaced by a ſpare one: if a failure happens in either of the valves, by unſcrewing the head or the pipe, you have them immediately under your view.

I recollect, Sir, an incident, which Ruſſell, my old profeſſor of natural philoſophy in Edinburgh college, uſed to relate, to ſhow the neceſſity of information as to what the world was already in poſſeſſion of It was of a country wright who came to him with an invention of his own, to conſult him how he might bring it to the beſt account: this invention was the contrivance of *caſter-wheels*, for beds or other furniture. The poor fellow was greatly aſtoniſhed and mortified, when he found that they had been ſo long known and in uſe, as to have become perfectly common. Though my own range of information is not very extenſive, I have nevertheleſs pretty ſtrong grounds to conclude, that Jardine's invention as yet remains untouched, and entire to himſelf. In all the varieties of pumps, and other contrivances for raiſing water, taken notice of in Walker's Lectures, publiſhed ſo late as 1802, I find no mention of any contrivance bearing the ſlighteſt analogy to Jardine's *bellows-pump*.

I am not ſure if leather would have ſufficient ſtrength to ſtand the ſtreſs neceſſary, if this pump were uſed to *force* water to any great height; though I have no doubt it might readily endure the inconſiderable ſtreſs applied to it, when the pump acts as a common pump, depending merely upon atmoſpheric preſſure for raiſing the water.

I ſhould imagine, that, in all caſes where water is not required to be raiſed above 28 feet, this pump might be uſed with great effect, in proportion to the active force applied; it might probably be peculiarly uſeful in ſhips.

If you account this worthy of inſertion in your uſeful and extenſively circulated miſcellany, I ſhould be happy if any of your correſpondents, more verſed in mechanics, would diſcuſs with you the merits of Jardine's invention: or, if you have ready acceſs to any perſon of this deſcription, I ſhould be glad that you would ſubmit

mit my manuſcript to their inſpection, and publiſh along with it their obſervations.

I am, Sir, your conſtant reader,

CHARLES FINDLATER.

Manſe of Newlands, 7th Aug. 1804.

NOTE BY THE CONDUCTOR.

We are extremely obliged to the Rev. Mr Findlater for the above communication, and truſt that ſome of our mechanical friends will favour us with remarks upon the practical utility of the invention therein deſcribed. So far as we are able to judge of its merits, the invention is ſimple and ingenious, and may prove highly beneficial to the community, by leſſening the toil of working pumps, as preſently conſtructed. We take this opportunity of ſtating, that every notification concerning improvements made on machinery, or on huſbandry implements, will be immediately inſerted in the FARMER'S MAGAZINE; no other publication in the iſland being ſo well calculated for diſſeminating information upon ſuch ſubjects.

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TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Injury done to Potatoes by Worms.

SIR,

THE writer of this paper found himſelf diſappointed, on receiving laſt Number, that no notice was taken, neither by any correſpondent nor yourſelf, of 'a letter from a gentleman in Glaſgow,' in a preceding Number, concerning the total failure of his crop of potatoes, for two ſucceſſive years, by the Wire Worm *; and being ſimilarly circumſtanced this year in his own crop of potatoes, from the ſame cauſe, except on part of the ground that had, the preceding year, accidentally received a ſlight dreſſing of ſoot, obtained from a ſal ammoniac manufactory at, 15d. per double horſe cart (having, at the time, no ſuch object in view as the deſtroying theſe inſects), on which part the potatoes were perfectly free from their ravages. The gentleman's land lies

* Muſeum Ruſticum. This inſect appears to belong to Order 7. Aptera of Linnæus. Genus not deſcribed.

lies near Glaſgow, where he, no doubt, can command this article; and as theſe vermin deſtroy the roots of corn, as well as potatoes, this hint may be of uſe to him and others, having no doubt that a ſmall quantity of ſoot, in its genuine ſtate, will prove more effectual, as, by the abſtraction of ſal ammoniac, it is rendered very weak. Thoſe inſects are greedily devoured by larks, wagtails, and many other ſmall birds; and, when a complete ſummer fallow is given, they are pretty clean picked by thoſe diligent gleaners. Paring and burning the turf, when the land is converted from graſs to arable, is a good general remedy. As theſe inſects prey upon roots at ſome depth in the ſoil, lime cannot be effectual, as it will have become effete before it reaches them. Your's, &c.

Newcaſtle, 30th November, 1804. ALKALI.

NOTE BY THE CONDUCTOR.

WE are clearly of opinion that a complete ſummer fallow, provided the weather is dry when the reſpective operations are performed, will, almoſt in every caſe, deſtroy the wire-worm. Paring and burning will, no doubt, prove equally efficacious, but this can only be done with old graſs land.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Letter from Sir George S. Mackenzie, Bart. on the Analyſis of Limeſtone, and on the Value of Labour.

SIR,

IN reply to Mr Low of Annfield, I ſhall ſhortly remark, that I never entertained a doubt but that there was limeſtone as pure as that deſcribed by A. S., Mr Low, and Mr Headrick; although I muſt expreſs my ſatisfaction at the very great accuracy diſplayed by the latter gentleman in the art of analyſis, as, in examining the limeſtone in queſtion, it appears he did not loſe *one atom*. Mr Headrick, being a chymiſt, will not deſpiſe *minuteneſs*; and it ſurpriſes me, that when Mr Low has ſo ſkilful a perſon to aſſiſt him, that *he* ſhould deſpiſe it.

I wait for Mr Headrick's eſſay, promiſed in your laſt notices, before I make any remarks on his letter ſent to you by Mr Low, which certainly ſatisfies me as to the extreme purity of the limeſtone, but does not in reſpect to the *alloy* or *refuſe*, as it is called. *Fine clay* and *ſand* are expreſſions inadmiſſible in a chemical

chemical proceſs, and in his eſſay, I am pretty ſure, Mr Headrick will not uſe them. I ſhall be more particular in my remarks hereafter.

To a candid mind, the acknowledgment of error, when ſatisfactorily convinced, muſt neceſſarily prove a grateful duty. Be ſo good, therefore, as allow me to ſtate, that after conſidering, with much attention, my letters in your Magazine on the value of labour, and that of Pol-Œconomicus, vol. v. p. 251, together with your notes, I perceive I have been miſled by commonplace notions on that important ſubject; and that Pol-Œconomicus and you are in the right. When making this acknowledgment, it gives me pleaſure to add, that I have gained, by the diſcuſſion, exactly what I promiſed to myſelf in correſponding with your Magazine. I ſtarted a queſtion on which different opinions confeſſedly prevail, and thereby brought forward a reply which cannot fail to have much influence with thoſe who think as I did on the very important ſubject which was under conſideration. I am, Sir, reſpectfully,

Your moſt obedient humble ſervant,

GEORGE S. MACKENZIE.

Coul, 19th December, 1804.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Farther Conſiderations on the Value of Labour in the Highlands, with Remarks on Sir George S. Mackenzie's Letter on that Subject.

SIR,

THE ſame reaſons which induced me, on a former occaſion, to trouble you with the "*Conſiderations on Labour*," which have been ſo fortunate as to meet with the approbation of your correſpondents, led me alſo to promiſe the communication of a few thoughts on the probable influence of the operations then about to be commenced by Government on the grand Caledonian Canal; in meliorating the condition of the Highlanders, and giving a ſtimulus to thoſe improvements which, it is admitted on all hands, their country requires. Circumſtances prevented, at that time, my making ſuch a communication, and I am happy to find, by Sir George Mackenzie's letter in your laſt number, that it would be now unneceſſary, as the commencement of operations on the canal (which, he aſſures us, is going on with great rapidity), and an actual experience of the

the conſequences with which they are attended, have diſſipated the gloom with which he contemplated that national object, and have convinced him that it will neither prove an obſtacle to improvement, nor be attended with thoſe "*ruinous effects*" which he formerly apprehended.

It is indeed ſomewhat ſurpriſing that the Baronet did not immediately perceive the extreme improbability of Government contractors being diſpoſed to offer extravagant wages to induce labourers to engage in that work, when the principal and moſt preſſing Parliamentary reaſon for putting it in immediate execution, was the employment which it would afford to thoſe ſhoals of ſtarving Highlanders, who, from want of occupation in their own country, were annually emigrating to another; or that thoſe wretched individuals, who are in the yearly cuſtom of travelling above one hundred miles to earn only 10d. or 1s. *per diem* in the Lowland harveſt, and who were repreſented as rejoicing in the proſpect of receiving any wages whatever, ſhould "actually leave, or threaten to leave," the canal, if the ſuperintendants did not ſatisfy their exorbitant demands; when, beſides receiving wages equivalent to the average price of the country, the reward of this labour was virtually increaſed, by the certainty with which they could look forward to conſtant employment.

This was an anticipation which, combined with the "conſiderations on labour," Sir George Mackenzie may be aſſured required no great intellectual labour, no cloſet ſpeculation, but which mere common ſenſe, acquainted with generally received and undiſputed facts, was fully adequate to form; which, ſo far from being the reſult of a theoretical ſpeculation, aroſe from an application of the plaineſt and ſimpleſt principles of political economy; principles which are as applicable to the Highlands as to the Lowlands—to Scotland as to England—and to the Continent of Europe as to the iſland of Great Britain. This, however, the Baronet does not ſeem to be fully ſenſible of, as, in his laſt letter to you, he obſerves, 'That Ayrſhire is at *ſo great a diſtance*, that he cannot ſuppoſe how a political economiſt there can render uſeful his ſpeculations on the condition of the North Highlands!'

Had this obſervation been made ſome centuries ago, it might probably have paſſed as an ingenious objection; but, to bring it forward in the light of 1804, is like oppoſing the caſque and the ſhield to the canon. At ſuch a period as the preſent, when communication is eſtabliſhed between every part of the kingdom; when the political union of north and ſouth has been ſucceeded by a *real* intercourſe of their reſpective inhabitants; when, from the patriotic labours of Sir John and the parſons, the hiſtory and *memorabilia*, both ancient and modern, of every Highland pariſh have

have been collected with ſuch care, and detailed with ſuch ſcrupulous fidelity, that not a mouldy halfpenny or disfigured mileſtone is deprived of a niche in the temple of Statiſtry; and when, moreover, in this very Magazine, quarterly reports of the ſtate of every county appear as regularly as the morning bulletins of a phyſician royal; it ſurely ought not to ſurpriſe *even* a Highlander, that a Lowlander ſhould know a little about the north country, particularly if the latter was to whiſper in his ear, that what little he did know was really gathered upon the ſpot.

Sir George, however, while he cannot deny that the circumſtances mentioned in the 'conſiderations,' as occaſioning a riſe in the price of labour, are fully adequate to produce ſuch an effect, tries to evade their force, in the preſent argument, by diſputing their exiſtence in the Highlands. Now, in order to fathom the depth of this evaſion, we muſt heave the lead to a little diſtance.

In his letter to you of the 20th December 1803, which, like original ſin, has been th parent of all the ſubſequent evil, Sir George complained, in the firſt place, of the riſe of labour in the Highlands, ſo great as to incline him to deſiſt from improving altogether; conjectured, in the ſecond place, that this was to be attributed to the combination of the workmen; and propoſed, in the third place, that this evil ſhould be remedied by a forcible depreſſion of the rate of labour, by means of a counter combination of the country gentlemen. In anſwer to this, it was attempted to be ſhown, in the 'conſiderations' inſerted in your 18th Number, that the combination of country workmen was a circumſtance as unlikely as unheard of, and that there was really no occaſion to ſuppoſe its exiſtence in this inſtance, as the riſe of wages, if general, could be traced to other cauſes; partly to certain local circumſtances, but chiefly to the general improvements which are in execution and in agitation, and which conſtitute the moſt deciſive marks of the proſperity of the country.

Can Sir George Mackenzie deny that ſuch improvements have been and are now rapidly proceeding? Is not he, and every Highland proprietor, who is ſenſible of his own intereſt, and deſirous to promote it, encloſing, building, and improving, and thus raiſing the value of his lands? And has he not actually been complaining of the expence of ſo doing? How then can he affirm that none of the cauſes ſtated by Pol-Œconomicus, as raiſing the price of labour, do exiſt in the Highlands? He himſelf affords a ſtriking example of the chief cauſe. His very actions contradict his aſſertions.

Wherever new improvements are commenced, and new labours carried on, there muſt ariſe a new demand for workmen and

and artificers; and, wherever a new demand ariſes, a compet among the employers muſt enſue; a riſe in wages muſt fol Theſe conſequences are as neceſſarily connected with each c as any of thoſe ſucceſſive events whoſe connexion is ſuſcep of mathematical demonſtration. Labourers, to engage with employers, muſt be tempted firſt to leave their old ones, they can only be tempted to do ſo by receiving a more libera ward for their exertions. Employers will not offer that re without expecting to have it returned with an increaſed pro themſelves: therefore, in this caſe, the intereſt of employer labourer are preciſely the ſame, and it is owing to an inatten to this ſimple truth, to a miſunderſtanding of the relation w exiſts between the two claſſes, and to a ſuppoſition that thei ſpective intereſts are hoſtile, and at variance with one ano that much jealouſy prevails, much enmity exiſts between t But let it be underſtood, let it be remembered, let it be refl on, that they are identical, the ſame; that what invigorates labourer gives ſtrength to the farmer; what debilitates the is enervating to the other; that as the hand is to the mo or the belly to the members, ſo are they mutually and re tively to each other; and that, whatever be the prejudices w create malevolence between them, prejudices which are t to be regretted and lamented, they muſt flouriſh or d muſt ſtand or fall together. It is for the intereſt of the labo that the farmer ſhould profit on the produce of his labour, cauſe he can then employ him more conſtantly, pay him bette his labour, and, by increaſing the product, thus diminiſh price of the proviſions which are neceſſary for his ſupport ſubſiſtence. It is, on the other hand, the fundamental intere the farmer, that the labourer ſhould be liberally rewarded, cauſe he can then afford to conſume more proviſion, and to the farmer a better price for his produce. The better the l claſſes are paid for their labour, therefore, the greater wi the profits of the farmer, ſince it is only by receiving wages that they can afford to live better. For it is an u niable truth, that it is to the conſumption of the *poor*, not o *rich*, that the farmer muſt look for encouragement. The l form a very ſmall part of the community, and any chang their mode of ſubſiſtence is comparatively of trivial im "That claſs of dependent penſioners, called the rich (ſays Burke), is ſo extremely ſmall, that if all their throats were and a diſtribution made of all they conſume in a year, it w not give a bit of bread and cheeſe for one night's ſupper to t who labour, and who in reality feed both the penſioners themſelves." But the leaſt variation in the income of that

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which conſtitutes the great body of the people, is attended with diſtreſs of the moſt alarming magnitude, or with benefit of the moſt extenſive importance; and while a depreſſion in the rate of labour would cramp the exertions of the farmer, the ſmalleſt riſe, on the other hand, were it only ſufficient to enable the labourer to eat an additional pennyworth of bread per day, would give an incalculable ſtimulus to agricultural operations, and occaſion the cultivation of a multitude of acres.

The preceding obſervations apply to labour in general, and may tend perhaps to obviate ſome prejudices, which, it is to be hoped, will be ſpeedily removed. But, beſides the great cauſe of high wages here pointed out, there are a number of ſecondary circumſtances which have a ſimilar tendency, ſeveral of which were mentioned, in the 'Conſiderations,' as having contributed, particularly in the caſe of ſkilled labour, to occaſion that riſe in the demands of maſons, which was aſſerted by Sir George as a fact, and lamented as an evil. The Baronet, however, roundly denies the exiſtence of thoſe circumſtances in the Highlands, and obſerves that he, "Pol-Œconomicus, may perhaps believe this when he has read the following caſe which happened to myſelf." He then entertains us with a ſtory of two maſons, which, ſo far, however, from being calculated to make converts to his doctrine, is in itſelf the moſt powerful opponent that can be advanced againſt it. Sir George, indeed, is as ſingularly unhappy in his facts, as unfortunate in his arguments. For what are the reaſonable inferences which are to be drawn from this anecdote, but that

1ſt, The Baronet raſhly conſidered, and complained of as *general*, over the whole Highlands, an exorbitance of demand in workmen, which was peculiar to his own caſe; and imagined to be the effect of a general combination among maſons, what, in fact, reſulted from the particular greed of his own *hereditary* builder. That the extravagance of demand complained of was not general, that no combination exiſted, is evident from the conſequence which, he informs us, enſued; that competition immediately operated, that a new workman ſtepped in, and undertook to do the work at one third leſs than was demanded by the old one. But,

2d, Sir George Mackenzie had no reaſon to complain of the extravagant demand of three guineas per rood in this inſtance. He himſelf was the cauſe of it; it aroſe upon his own miſmanagement, and he cuts the knot at once, when he informs us, that this family-maſon "was ſo far ſatisfied with the proſpects he had, that he aſked a ſmall farm, which I gave him." Now, this was certainly a retrograde motion in improvement, oppoſing what every one ſhould be deſirous to advance, and confounding what every good politician has endeavoured to ſeparate.

No

No man who wiſhes to have the work of any trad done, and *cheaply* done, would think of confounding twc together. This object can only be attained by the divi trades, which, as was formerly obſerved, " cheapens lab rendering it more perfect, and augments its powers by ſimp its proceſs." Sir George might as well expect to have hi cheaper ſhaved, or his back better bliſtered, by revivi obſolete, though once honourable, profeſſion of *barber-ſi* as to have his fields better ploughed or his walls cheaper tered, by continuing the barbarous handicraft of *farmer-* The fact is, that inſtead of ſuch being the conſequence, wages and bungling artiſans would be the indubitable Adam Smith obſerves, " That a country weaver, who cul a ſmall farm, muſt loſe a good deal of time in paſſing his loom to the field, and from the field to his loom. two trades are to be carried on in the ſame workhouſe, t of time is no doubt much leſs. It is, even in this caſe, ever, very conſiderable." What then muſt it be in the ca farmer-maſon? Now with the hoe, then with the hammer with the plumb, there with the ploughſhare; to-day in to-morrow in mortar; and whoſe trades, ſo far from beir ried on in the ſame workſhop, are generally at miles dif and one of them, indeed, of ſo unſettled a diſpoſition, as changing place almoſt every fortnight, not only requiri humble attendance of its votary, but alſo the removal whole ſtock of implements and accompaniments, and not quently even of his houſehold gods.

To compenſate for the great loſs of time which muſt thu unavoidably enſued, we cannot be ſurpriſed that the poor ſhould have demanded from Sir George an additional guir rood for his labour, having, perhaps, a greater taſte for en his uſual meſs of porridge, than for reliſhing the beau nature, which, Sir George Mackenzie informs us, he had i an opportunity of doing, in taking his " agreeable mo walk through the *fertile fields* and *living haunts*" of Coul.

But Sir George further argues, that inconſtancy of en ment, in this inſtance, could not be the cauſe of the riſe of de becauſe he himſelf would have kept the man in full worl adds, " that the maſon was ſo far *ſatisfied* with his proſpe he aſked a farm;" though, from the latter circumſtance, it rather ſeem that he was not quite *ſatisfied* with the proſp his trade, or he would never ſurely have thought of giving trowel for the ſpade, and of combining the trade of a f with the profeſſion of a builder. The man ſeemed rather ſenſible of the impropriety of ſuch a combination, and, by m

an extravagant demand as a maſon, took a modeſt way of acquainting his maſter of his having now become a farmer. So much for the maſonic epiſode. But, ſetting aſide altogether the conſideration of this illuſtration, it muſt be obſerved, that a general concluſion is not to be drawn from a particular circumſtance; nor is it to be ſet down as an indiſputed truth, that the labour of the country is as conſtant as that of the towns, becauſe a Highland laird offered full employment to his maſon. The reverſe has been eſtabliſhed by general obſervation, and ſeveral of the circumſtances which occaſioned it were formerly mentioned; among which, the greater number of idle days which muſt occur in the Highlands, ariſing from *foul weather*, and want of protection from it, was mentioned upon high authority. Your correſpondent, however, flatly denies the exiſtence of ſuch cauſes; a circumſtance which muſt certainly give conſiderable pleaſure to your readers, although it cannot but be conſidered as a miraculous interpoſition of providence, which has thus altered the nature of things, and ſoftened the aſperity of climate, in ſupport of the argument of Sir George Mackenzie!

Your correſpondent aſks if Pol. Œconomicus can blame him for not giving three guineas *per* rood, when he can get the work executed for two? Far from it, he would adviſe Sir George always to employ thoſe workmen who execute their work in the beſt manner, and at the cheapeſt rate; but if, as Sir George aſſerted, the riſe in the price of labour was general in the Highlands, it certainly would be wretched policy in him to diſcard all his labourers on that account; to let his tenants lie without houſes, and his lands without improvement, when that very riſe was to enſure him a better rent from the one, and a larger profit from the other.

Againſt the *improbability*, nay almoſt *impoſſibility*, of a combination among country labourers, which was formerly pointed out, an argument is not even attempted by the Baronet; he contents himſelf with a fact, as uſual; aſſerting, that "the workmen did poſitively ſettle that they would demand an increaſe of wages." In this aſſertion Sir George ſpeaks in a much lower tone, and carefully avoids the term *combination*; keeping which out of view, he attributes no more to the Highland labourers, than what is fairly, openly, and daily practiſed by every vender of a marketable commodity. By a natural ſettlement, a tacit convention, all ſellers agree to raiſe the value of their wares. Into what market can you go, that you do not obſerve a fluctuation, a higgling take place, before the average price is determined, before the actual value of the commodity is offered on the one hand, and accepted on the other. For the purchaſers naturally

naturally agree to offer leſs than the juſt value, as the venders ſettle to demand more; yet before a compromiſe takes place, the former are as ſure to offer more, as the latter are to accept leſs; and before the concluſion of the market, the true value of the commodity is fixed, by the feelings, wants and inclinations of the reſpective parties, with a degree of delicacy, truth, and minuteneſs, far ſuperior to what could poſſibly be eſtabliſhed by any judicial authority or arbitrary eſtimation. But it would be abſurd to attribute, in this caſe, to a ſyſtematic combination, what naturally ariſes from the intereſted motives of mankind; and it would be ſupererogation, on our part, to attempt to check, by legiſlative proviſion, or by any regulation whatever, what is effectually counteracted by the ſame motives which occaſioned it,—by the feeling of particular wants, and the ſenſe of individual intereſts. Preciſely in the ſame light as we view the tranſactions of the vender and the purchaſer, are we to conſider the intercourſe of the labourer and his employer. Labour is as much a marketable commodity as any other article of traffic; its transference is ſubject to exactly the ſame rules, its value is regulated by the ſame circumſtances, and its price is ſubject to ſimilar fluctuations. As you, Sir, have very properly obſerved in your note on Sir George Mackenzie's letter, it is the demand for the article, and the quantity which is preſented to ſupply that demand, which regulates the price of every commodity in the market, and of labour among the reſt. The workman who, in expoſing a quantity of labour to ſale, demands a price for it beyond its real value, is puniſhed exactly in the ſame way as the ſhopkeeper who aſks more for his goods than the cuſtomary price, *i. e.* by the deſertion of his cuſtomers. On the other hand, he who offers to work for ſmaller wages than his brethren, is rewarded in the ſame way as the ſhopman who ſells his wares at leſs than the common price, *i. e.* by the acquiſition of new cuſtomers, and an increaſed ſale of his commodity. Sir George, indeed, exemplifies this in his maſonic anecdote. But the ſellers of goods, as well as the ſellers of labour, participate in that univerſal inclination, to make as much of their commodity as they poſſibly can, and generally demand a higher price for their article than they are ultimately willing to accept. The ſame thing takes place in all other trades; and if, therefore, by 'the workmen *ſettling to demand more for their commodity*,' Sir George means that they determined to get as high wages as they could, he will perceive that no particular blame can attach itſelf to them on that account. If, however, on the other hand, he means by this expreſſion to maintain his former aſſertion, that an illicit combination (in legal acceptation of the word) did actually exiſt among the Highland

Highland labourers, he cannot but regard his anecdote of the maſons as unfortunate, ſince it not only ſhows the improbability of the fact, but alſo the inutility of that remedy which, admitting the evil to have exiſted, Sir George had preſcribed for its removal. To prove this, was in ſome degree the object of my former communication; but as Sir George Mackenzie, in his laſt letter, profeſſes an averſion to abſtract reaſoning, a ſimple and obvious illuſtration may perhaps be more acceptable.

Suppoſe that the dealers who ſupply a large and populous town with proviſions of any ſort—ſay fiſh—were ſo ill adviſed as to form a combination, and, without any cauſe, were to raiſe the price of that article to an immoderate and extravagant rate. What would be the conſequence? In the *firſt* place—ſuppoſing that this combination might be continued for ſome time; it is evident that the trade would be conſiderably diminiſhed, and that the majority of thoſe who were in the practice of conſuming that article would refrain from that indulgence, and reſtrict themſelves to a more reaſonable, though equally nutritive diet; by which means, even at the monopoly price, the fiſhmongers would gain very little, nay moſt probably loſe by the meaſure, as it is an undoubted fact, that the gain of all tradeſmen is greater when the article is cheap and the ſale extenſive, than when prices are high and the vent proportionally ſmall.

But, in the *ſecond* place, ſuch a combination could *not exiſt* beyond a day, becauſe, as there was no real ſcarcity, and as the ſale was ſo conſiderably diminiſhed, a great ſurplus would remain in the hands of the fiſh-dealers, which ſurplus, being of a periſhable commodity, could neither be ſtocked nor ſtored up, and muſt neceſſarily be ſold to prevent a very great loſs; in conſequence of which, the combination would be receded from, and a competition would inſtantly ariſe. That ſuch muſt be the conſequence, is evident alſo from another conſideration. Every combination ſuppoſes the exiſtence of conſiderable funds in the hands of individuals, to enable them to ſtand away from the market, ſo that the prices may riſe. But the majority of dealers, in moſt trades, is of thoſe whoſe capitals are ſmall or moderate. Now, although the larger capitaliſts might ſupport a combination ſucceſsfully for ſome time, if they alone poſſeſſed the market, by holding away from it, which they could afford to do from the extent of their funds, yet this they are unable to do, ſo long as the ſmaller but more numerous capitaliſts participate the market, who, from the weakneſs of their funds, are unable to withhold their goods from ſale a ſingle day, without the proſpect of bankruptcy and ruin, becauſe, upon its being turned, they depend for their ſubſiſtence. Thus, a trader who daily turns a capital of 2cl., can ſupport for a time a diminution of ſale,

equivalent to a reduction of profit from ten to five *per cent.*, becauſe he can, without difficulty, manage to live upon twenty ſhillings *per diem*; but a dealer who, like the majority of thoſe who in large towns ſupply the bulk of the inhabitants with freſh proviſion, many of whom, we are aſſured, turn only a capital of one, two, or three pounds *per* day, cannot poſſibly ſtand away from the market, or ſupport a ſimilar diminution of ſale, becauſe they cannot ſupport their families on one, two, or three ſhillings only *per* day. Hence, it is obvious that the dread of combination among thoſe who ſupply the people with freſh proviſion, is quite unfounded and unreaſonable, as long as the preceding circumſtances exiſt, the trade being diſperſed among ſo many hands, and carried on upon ſuch ſmall and unequal capitals. How much more imaginary, then, muſt be the idea of combination among country labourers, when the ſame circumſtances exiſt in the latter caſe more unexceptionably than in the former, and when the ſame reaſoning which has been uſed in the one, may be employed with infinitely more force in the other! If conſumable commodities, ſuch as have been pointed out, are of ſuch a periſhable nature that they do not admit of being ſtocked or ſtored up, and thus withheld from the market, what reaſon have we to dread that labour can be withheld to anſwer the purpoſe of combination, when it is infinitely more periſhable in its nature? The vender of the former, in ſupporting a combination, ſuffers only a partial loſs by his proviſion becoming ſpoiled; but the vender of labour, in ſupporting a ſimilar meaſure, ſuſtains a total loſs of his commodity. The workman, unemployed, is the moſt unfortunate of all traders; for idleneſs, like abortion, deſtroys the fruits of his labour before even they are in exiſtence.

But again—If it is impoſſible for thoſe who have only ſmall capitals to ſupport a combination effectually, how is it poſſible for labourers to do ſo, who depend on to-day for the ſubſiſtence of to-morrow, and who, if they refrain from labour, muſt inevitably ſtarve?

Theſe conſiderations are plain and obvious; it is ſurpriſing indeed that they ſhould be ſo eaſily overlooked; and they certainly are adequate to prove that the combination of country labourers is one of the moſt improbable occurrences, which the fancy of man can imagine; far more unlikely indeed than the combination of the venders of conſumable and periſhable commodities, which, according to political writers, is one of the moſt unlikely caſes of combination, and the leaſt to be apprehended. They alſo ſhow, that, admitting the exiſtence of ſuch aſſociations, there is no occaſion for law to counteract them; that Sir George's propoſal of the interference of the country gentlemen

gentlemen to oppoſe them would be quite unneceſſary, as they fall moſt ſpeedily when left to their own natural imbecility, and bear in their own boſoms the ſeeds of their decay.

Although perhaps treſpaſſing too much on your patience, I cannot allow to paſs unnoticed, another propoſition advanced by Sir George Mackenzie, equally erroneous with thoſe I have already diſputed, viz. that the intereſt of the maſter builders or employers is connected with extravagance of wages, and that 'they derive larger profits when wages are high, than when they are low.'

That the real fact is directly the oppoſite of this opinion, Sir George may reſt aſſured. Competition takes place among this claſs of men, as well as among thoſe to whom they give employment; they are no more exempted from wants and neceſſities than any other order of their fellow creatures; and a more perfect acquaintance with them, will convince the Baronet, that theſe wants and neceſſities will impel the majority of their number to reduce their profits to the *loweſt poſſible* rate, conſiſtent with a comfortable ſubſiſtence, and with the dictates of humanity. So far, indeed, from increaſing their profits, extravagant wages rather diminiſh their employment, by giving a check to thoſe operations, a principal motive to which is the capability of executing them at a reaſonable rate. Such an opinion (Sir George muſt pardon me for aſſerting) ſeems to partake more of the ſpirit of vulgar prejudice and of raſh conjecture, than of liberal thinking, or of deep reflection, and can only be compared with that popular prejudice which conſiders the intereſt of the farmer as being intimately allied to the extravagant prices of years of ſcarcity; a prejudice which, however general it may be, is as unjuſt as it is unfounded.

Your correſpondent alſo preſſes on the notice of Pol-Economicus, the appeal of Highland workmen to the price of proviſions, as the ſtandard by which they regulate the value of their labour; and anxiouſly requeſts him not to overlook, what otherwiſe he ſhould have been diſpoſed to diſregard, as much as their appeal to the ſecond ſight as a proof of ſupernatural communication; conſidering both as the reſults of the falſe aſſociations and caſual conjunctions of ſuperſtitious theory and miſtaken ignorance. The vulgar and uninſtructed apprehenſion is always eſtabliſhing connexions between events which have in fact little or no relation to each other; a conſequence proceeding from the exerciſe of one of the moſt active powers of the mind, when allowed to operate without the direction of reaſon, or under the influence of partial and intereſted conſiderations. It is certainly true, that workmen do frequently urge the *hardneſs of the times*, as a mean of procuring a more liberal reward; but

they only appeal to this, as to one of the moſt plauſible pretences by which they may attain the object of their deſire; it is one of the mercantile tricks, by which they endeavour to ſet off their commodity to the greateſt advantage. It is not true, however, as Sir George aſſerts, that they uniformly appeal to the price of proviſions as the *ſtandard* by which they wiſh their wages to be regulated. They entirely depart from it in years of plenty, when their wages greatly exceed the value of the neceſſaries of life, and nothing would diſpleaſe them more than the idea of appealing to ſuch a ſtandard. In this caſe, the imaginary ſcale becomes the hobby of the employer; he mounts into the ſaddle, which was the ſeat of the labourer in years of ſcarcity; he employs the tricks of the buyer to depreciate the value of the commodity he wiſhes to purchaſe; he remonſtrates with the labourers on the extravagance of demanding the ſame wages, when proviſions are only one half of their former price. But the labourers are as deaf to his reaſoning in plenty, as he was to theirs in times of ſcarcity; and although the ſtandard is employed alternately by either party, according to the oſcillation of intereſt, in dearth or in abundance, yet we find, in fact, that it is a mere ſtalking-horſe, by which the parties ſtrive to approach their reſpective objects, but which has really little effect in promoting the end of either the one or the other. The influence of a rife in the price of proviſions indeed, on the value of labour, contrary to what is commonly ſuppoſed, is to produce a fall inſtead of an elevation, by bringing, as you have obſerved, more labour into the market.

In confirmation of this reaſoning, many examples might be adduced, ſhewing that ſo far from the price of proviſions being the natural ſtandard of the rate of labour, elevating, or depreſſing it according to its own correſpondent fluctuations, a contrary effect is generally produced. It will however be ſufficient for our purpoſe, to refer to the continent of America on the one hand, and to the Chineſe empire on the other. In the former, proviſions are abundant, and ſubſiſtence exceedingly cheap, but labour is extravagantly dear; in the latter, the rate of wages is uncommonly low, while the difficulty of procuring food is ſo great and diſtreſſing, that to prevent the evils of famine, infanticide is authoriſed by law, and practiſed by the parent.

With regard to the queſtion, how far it would be conſiſtent with good policy and humanity to regulate the wages of the labourer by the price of proviſions; or, what is the ſame thing, to convert his reward from money into ſubſiſtence; it is not my intention to interfere at preſent. It is a ſubject which requires conſiderable inveſtigation, and which, as far as I know, has never been

ived of no gratification; and while the cravings of hunger naciated every countenance but his own, his cheek would be ıſhed with the fulneſs of plenty; and becauſe he found his inreſt to be intimately connected with the change, he would ory and rejoice in the diſtreſſes of his fellow-creatures.

It is with no ſmall degree of regret, that from an unalienable tention to other avocations, Pol Economicus is under the neſſity of declining the polite invitation to inſtruct Sir George lackenzie in the principles of an important ſcience, by private communicating with him upon the ſubject; and that regret hich muſt naturally ariſe from being obliged to decline ſo honourable an employment as the inſtruction of a Highland baron, is not a little augmented, by an anticipation of the aptneſs id ability of the pupil, and conſequently of the eaſineſs and eaſure of the taſk; for Sir George has confeſſed, in his laſt ommunication to you, that he is already beginning 'to be *more* f the opinion that the value of labour ſhould be left to find its wn level, becauſe he has begun to experience that it *will* find s own level.' Experience is certainly a moſt excellent ground or a change of opinion; and, though an expenſive, it is truly moſt convincing ſchool As Sir George has by its means *near*attained the poſſeſſion of an *eſtabliſhed* truth, it is highly probable that, by perſevering in the ſame courſe, he may in good me acquire a knowledge of the coarſer principles of political conomy; a knowledge, to which thoſe muſt be contented to atain, by diligent ſtudy and by deep reflection, who are not ſo ortunate as to poſſeſs ſimilar means of expounding ſuch truths,

fix upon any ſentence which intimates ſuch a thought, or can juſtify ſuch an accuſation; and he can aſſure the Baronet it was far from his intention. Equally remote from his mind was any idea of making the animadverſion on your correſpondent's letters, a general cenſure on Highland gentlemen; he never ſuſpected, and indeed would be ſorry to ſuppoſe, that they ſupported the opinions expreſſed in thoſe communications. If, however, any thing like contempt can be diſcovered in the 'conſiderations,' it is a contempt in which he will be ſeconded by all enlightened men; a contempt of erroneous and illiberal principles, which it is heartily to be deſired were entirely exploded. But it is a contempt of principles alone;—he applies it to no individual; if any one appropriates it to himſelf,

'Let the galled jade wince!'

Truſting that the length of this letter will be excuſed by you and your readers, I remain, &c. &c. POL-ECONOMICUS.

Ayrſhire, 1ſt December, 1804.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Remarks on the Feeding Byre deſcribed in No. XIX.

SIR,

I have conſidered with attention the plan of a feeding byre deſcribed in the 19th Number of the Farmer's Magazine (vol. 5th, p. 300), with the ſtrictures made upon the one built at Eſkmount, deſcribed in a former Number, and in conſequence hand you a few remarks on each.

I beg to remark in the outſet, that it was not propoſed, in the deſcription of the Eſkmount byre, to give a plan of *the cheapeſt byre that might be erected*; the object propoſed was merely to exhibit a very clean and comfortable kind of feeding byre, where the dung and urine of the cattle could be collected in the moſt complete manner, and with the ſmalleſt trouble; and where the turnips, ſtraw and litter uſed for the byre, could be preſerved in the moſt effectual way, and at the ſame time furniſhed at the byre, with the leaſt trouble to men and horſes; provided all theſe objects could be accompliſhed '*in a manner not unuſually or unneceſſarily expenſive.*'

Now, Sir, with ſubmiſſion, the author of the plan of the Roxburghſhire byre, ſeems entirely to overlook theſe important matters; nor can I ſee in what reſpect his plan is one whit better than any common cow byre; and in fact, I apprehend it will turn out to be both leſs cleanly, and leſs wholeſome. I ſhall therefore now attempt to ſtate, ſhortly, the different reaſons from which it appears to me that the Roxburghſhire byre is greatly inferior, in every way, to that at Eſkmount.

1ſt,

1ſt, It cannot be ſo eaſily dunged and kept clean, and indeed, in one part (the central ſpace marked C on the plan), it ſeems to be nearly impoſſible to remove the dung; certainly not without great difficulty at leaſt, and even danger. For, on each ſide of this ſpace, there are two rows of cattle, ſtanding with their tails towards each other, with a ſpace of *four feet only* between them; Query, How is this place to be cleaned out? And muſt not the perſon who attempts it, be every now and then whiſked by the tails of the two rows of cattle, and not unfrequently get kicks from them?

2dly, In the Eſkmount byre, the urine of the cattle runs off ſpontaneouſly, and is collected in a place by itſelf, with the greateſt care, ſo as to be uſed for making compoſts. In the Roxburghſhire byre, the urine ſeems either to ſtagnate in the byre, or to run into the dung court in the old way, and ſo both dirties the byre, and is in a great meaſure loſt.

3dly, The acceſs of the Roxburghſhire byre, and the road by which the turnips, &c. are propoſed to be conveyed to it, lies *through the centre of the dung court*; and this, with ſubmiſſion, ſeems ſuch a piece of ſlovenlineſs and abſurdity, that I ſhould beg leave to queſtion, whether any byre, with ſuch acceſs to it, has ever been erected. But it is added, that, if neceſſary, 'the large doors may be placed in the back wall of the byre.' And to this it is anſwered, that if this were to be done, there would then be no fewer than *five* (if not *ſeven*) doors to this one ſmall byre; and theſe too on oppoſite ſides of the building; the effect whereof muſt be, that of nearly, if not completely, ſtarving the cattle to death, by the cold.

4thly, The principal ground upon which the ſuperiority of the Roxburghſhire byre ſeems to be reſted is, the giving up the idea of the turnip barn, and converting the ſpace it occupies into a feeding byre alſo; and if this notion were to be approved of, it would be no difficult matter to carry it into execution, ſo as to feed nearly as many cattle in the one byre as in the other; and this without any additional building, but merely by changing the ſhape of the turnip barn. It is very eaſy however to ſhow, on a fair compariſon of the two byres, each holding 20 cattle, with 3½ feet of ſtall to each as in the Roxburghſhire byre, that the extra expence of building in the Eſkmount byre would not amount to *four guineas*; and there would ſtill remain in the Eſkmount byre a ſpace for depoſiting the turnips infinitely preferable to that in the Roxburghſhire one, viz. by taking two feet off the breadth of the cattleman's walk, the whole length of the byre, by means of a low partition.

But, the truth is, it is impoſſible to keep turnips in the ſan place where the cattle are feeding, even for a very ſhort

riod of time, without their being thereby greatly injured and tainted. The effects of the breath and perſpiration of the cattle, and the effluvia ariſing from their dung and urine, will be found in a very little time to affect the quality of the turnips ſo materially, that the cattle will not eat them with that avidity and reliſh, ſo neceſſary to their fattening ſpeedily. The principal objects in the conſtruction of the Eſkmount byre, are cleanlineſs of food, litter, &c. *as articles of the moſt eſſential importance towards putting the cattle into high condition, and fattening them in the ſhorteſt poſſible ſpace of time.* In the Roxburghſhire byre the diametrically oppoſite doctrine ſeems to be adopted; viz keeping the cattle, and their food too, in the moſt dirty poſſible condition—worſe indeed than almoſt any cow byre, except perhaps ſome that may be found in the Highlands.

5thly, The ſpace allowed for the ſtalls of each of the cattle in the Roxburghſhire byre is *only* $3\frac{1}{2}$ feet; whereas, in the Eſkmount byre, it is *four feet*;—and this laſt ſpace will be found barely ſufficient for large cattle, eſpecially ſuch as are generally choſen for turnip feeding. Nothing is more prejudicial to cattle than crowding them cloſe together; nor any thing more beneficial to their health and comfort, than allowing them full room not only to ſtand clear of each other, but alſo to lye down and ſtretch themſelves when they chooſe.

6thly, Another circumſtance, of the greateſt benefit in the Eſkmount byre, is the manner by which the air of it is continually renewed (and conſequently rendered ſweet and comfortable) by the *ventilators*; which are ſo contrived as to keep the cattle cool in ſummer, without allowing them to be ſtarved in winter; and which, at the ſame time, effectually preſerves the roof and wood work of the byre from being rotted by the noxious exhalations which otherways would prove injurious. But theſe circumſtances are entirely diſregarded in the Roxburghſhire byre, as being of no kind of conſequence.

In ſhort, Sir, it does not appear to me, I muſt confeſs, that the Roxburghſhire byre, amidſt numerous diſadvantages and inconveniences, contains any advantage over the Eſkmount byre, *with one ſolitary exception*, which need ſcarcely have been noticed, viz conveying the turnips from the barn by a wheelbarrow, in place of baſkets; an improvement which was adopted before Mr S. E. ſuggeſted it.

With regard to the plan of *pitting turnips*, ſo much recommended by Mr S. E., we preſume that this is noways new to any perſon who ever ſaw a potato; and when tried, it will be found to be a mode of preſervation, very inferior to ſtoring them up carefully in the barn, and covering well up with ſtraw

ſtraw to preſerve them from the froſt; not to mention the trouble and expence of having ſo many large pits as will be required, if they be pitted near the farm-ſteading; nor the trouble of carting them home in winter, during a ſtorm, if they be pitted in the field where they grew. In either caſe, the trouble and expence would in a very few years exceed the expence of a turnip barn. But further, if turnips are to be pitted, it muſt be before the ground is wet by the winter ſtorms; whereas they can be brought home to the byre whenever a good freſh day occurs: you can thus eaſily have ſix weeks or two months ſtore of them in your barn, and you can add to theſe as occaſion and conveniency ſuits. But if they are to be pitted, it muſt be done at once, when the ground is dry. Now, Query, What ſize and number of pits would be required to contain fifteen or ſixteen acres of good turnips? If it be admitted that the turnips would cover the ground to the mean depth of three inches, which is certainly moderate, a crop of fifteen acres of turnips would amount to 7605½ cubic yards, or to upwards of 35 cubes, of which the ſides are 6 yards each, or 18 feet!!

A better mode of preſerving turnips during winter than by pitting them, is by building up the roots like a ſtack of corn, and covering them plentifully with thatch laid thick on, and faſtened with ſtraw ropes, not only at top, but alſo all along the ſides, ſo as to keep them as ſecure as poſſible from the effects of the froſt and rain, &c.

And now, Sir, I have only to conclude by mentioning, that, on trial, the Eſkmount byre has been found to anſwer the objects intended, beyond expectation; and ſeveral byres have been built on the model of it, and with ſatisfaction too. In one inſtance, the feeding troughs have been made of wood, in place of pavement or *flags*,—timber being more abundant in that particular quarter of the country. And on the whole, I am humbly confident, that no gentleman, or tolerably opulent farmer, who wiſhes to ſee his cattle kept in a healthy, clean, and comfortable ſtate, and at the ſame time to make the moſt of their dung and urine,—and alſo to give the cattle during the whole winter, clean, freſh, unfroſted turnips, with little trouble to ſervants and horſes, will ever have occaſion to grudge the trifling extra expence of erecting ſuch a byre as that at Eſkmount. I am, Sir, your conſtant reader, A STOT FEEDER.

January 1805.

P. S. In this account, I have not once noticed the various uſeful purpoſes to which the byre and barn may be put, when not occupied by the turnip feeding; but which will be found to be very numerous during the ſummer months, particularly in wet weather.

TO

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Information requeſted concerning the Reclaiming of Mountain Land.

SIR,

IT will be extremely agreeable to many readers in this quarter, to receive information as to the beſt modes of planting mountain land producing at preſent nothing but heath, with the beſt kind of trees; alſo, whether *ſeeds* or *ſeedlings*, and at what age each kind, ſhould be planted. It would alſo be agreeable to know how each kind ſhould be *ſown* or *planted*; likewiſe, the beſt mode of fencing ſuch land, particularly where ſtone cannot be had.

As vaſt tracts of this kind of land in Ireland remain in a ſtate of nature, and in many places where lime cannot be obtained, it would be well that the *different* modes of reclaiming ſuch land were known, either by *burning*, *liming*, *ſanding* with *pit* or *river gravel*, or by *irrigation*, and alſo the effects of *fine river ſand*, which in many places is to be found, as well as thoſe of *marl*; the *kinds* of graſs ſeeds to be ſown in each piece of land, according to the mode in which it has been reclaimed, unleſs it is thought that the ſame kind will anſwer, let the mode of reclaiming be what it may. But as ſo many queries ariſe, I think it is beſt that they be claſſed thus, in order that they may be anſwered ſeparately.

1. The beſt mode of planting mountain land (ſuch as before deſcribed) *with ſeeds of foreſt trees.*

2. The beſt mode *with ſeedling foreſt trees.*

3. The beſt mode *with trees of a greater age.*

4. The beſt mode of *fencing* ſuch land where *ſtone* is *not* to be had.

5. The beſt mode of reclaiming ſuch land by *burning*, where lime, marl, ſand or gravel cannot be procured.

6. The beſt mode of improving it with lime.

7. The beſt mode with *gravel* raiſed from pits in the land, or got from the neighbouring rivers.

8. The beſt mode with *fine river ſand.*

9. The beſt mode with *marl.*

10. The beſt mode by *irrigation*, without the aſſiſtance of *lime*, *gravel*, *ſand* or *marl.*

11. The kinds of graſs ſeed beſt adapted for the land that may be reclaimed.

With hearty wiſhes for your ſucceſs in ſo laudable an undertaking, I remain, with much reſpect, your obedient, humble ſervant,

H. P.

Cork, Ireland 1804.

TO

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Anſwer to the Letter taken from the Tyne Mercury relative to the Bamborough Breed of Sheep.

SIR,

THE letter publiſhed in the Tyne Mercury, ſigned VERITAS, of which VIATOR has ſent you a copy, was ſo well underſtood by the breeders of this county, that it was thought perfectly needleſs to make any reply; but as it has been tranſplanted into your Magazine, and of courſe widely circulated, it *becomes* deſerving of notice. The *real ſtate* of the caſe ſhall therefore be explained as briefly as poſſible.

VERITAS, in his letter, quotes a paſſage from your Magazine for Auguſt 1803, in which it ſeems that the words 'want of knowledge,' had irritated the feelings of a certain perſon ſo much, as to induce him to get this letter written and publiſhed in the Tyne Mercury; with what propriety will appear in the ſequel.

VERITAS ſays, 'I will prove that the Bamboroughſhire, the *unadulturated Bamboroughſhire* breed of ſheep, are at this moment ſuperior in ſize, weight, and quality of wool, to any of the Leiceſters that ever were reared or improved by Mr Culley.' To this the breeders of the improved Leiceſters have to anſwer, that they never contended for ſuperiority of great ſize, or great weight. Their object is to breed ſheep which may weigh from 18 to 24 lb. per quarter, fatten at an early age, lay their fat upon the moſt valuable parts, and have the greateſt quantity of mutton from a ſmall, fine formed carcaſe, with the leaſt offal in bones, pelt, &c.

To prove the ſuperiority of the *unadulterated Bamboroughſhire breed*, VERITAS brings forward an inſtance of 'one of the moſt opulent and reſpectable farmers in Bamboroughſhire; one who has *never adopted* the plan of *croſſing his ſheep with the Diſhley breed*,' &c.—'From this farmer, one of the moſt eminent butchers in Northumberland has repeatedly declared, (*and will prove it if required*) that he has bought from him, and killed, this year, *the beſt lot of ſheep he ever killed in his life.*'

The gentleman who bred theſe '*unadulterated Bamborough ſheep*,' can tell VERITAS, or any other perſon who may inquire of him, that he has been in the habit of croſſing his ſheep with the Diſhley breed for upwards of twenty years, and, for this purpoſe, hired tups of Mr Marſhall of Chillingham Barns (bred from Mr Bakewell's Hunter) and from his neighbours, who had tups from Mr Culley; and that at Captain Simpſon's ſale he purchaſed part of the ſheep ſtock, well known to have been of the firſt Diſhley blood. Yet VERITAS ſays, that this reſpectable gentleman '*never adopted the plan of croſſing with the Diſhley breed.*'

Mr Thomas Ratcliff, one of the moſt reſpectable butchers in the north of England, was the perſon who killed the ſheep in queſtion; and 'he has repeatedly declared (and will prove it if required)' that he NEVER SAID they were '*the beſt lot of ſheep he ever killed in his life;*' nor ever ſaid 'he would prove it if required;' and VERITAS well knows what Mr Ratcliff ſaid to him on this ſubject at St Ninians Fair.

I forbear to make any comments. The public will draw their own concluſions; and am yours, &c. C.

January 1805.

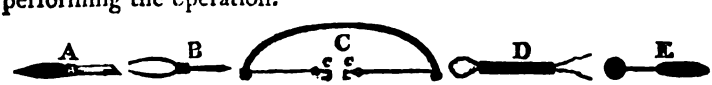
P.S. On the ſubject mentioned in the latter part of VIATOR's letter, I may probably trouble you at a more convenient opportunity.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Account of the Chineſe Mode of making Capons.

SIR,

YOUR correſpondent S. J. in No. 18. wiſhes to obtain information on the method of making capons, as he thinks it may be an object in rural economy. There is not the ſmalleſt doubt that a capon is preferable to a hen or cock. They grow larger and fleſhier, and fatten more ſpeedily. I am not certain about the method formerly uſed in Scotland, but I believe it was done by running a ſharp ſkewer in on each ſide of the back-bone, directly upon the teſticles, and by moving it backwards and forwards the ſubſtance of the teſticles was deſtroyed, or at leaſt ſo much damaged as to effect the intended purpoſe. If the teſticles are firmly fixed to the muſcles of the back, this muſt be a very ſimple method, as it only requires to know exactly the ſpot where the ſkewer is to be introduced, and the depth to which it muſt be puſhed. I believe, however, that the teſticles are but looſely attached; in which caſe their muſt be great danger of miſſing the object, and perhaps wounding the inteſtines, which moſt probably would occaſion the death of the chicken. As the practice is univerſal in China, I ſend you an account of their method of performing the operation.



The wings of the fowl being folded back till they meet, the left foot of the operator is placed on them, the fowl lying on its left ſide. The great toe of the right foot is placed on its legs. The feathers are then plucked off the ſide. An inciſion, about an inch in length, commencing an inch from the back-bone, and extending obliquely downwards and forwards, is made with the knife A (the cutting part of which is the beveled

beveled point). This is carefully carried through the ſkin, muſcles, &c. till the inteſtines are laid bare. The flat blunt hooks *c c* are then put into the inciſion, which is extended and kept open by the elaſticity of the bamboo * bow C. The inteſtines are then puſhed aſide with the forceps B (which form the handle of the knife A.) The teſticle being now ſeen, is laid hold of by the forceps till the ſtalk † of graſs through the tube D is paſſed over it. The graſs is then drawn backwards and forwards through the tube, till the ſpermatic cord is *ſawn* aſunder. The teſticle is then removed with the ſcoop E. The other teſticle is then laid hold of, and removed in the ſame manner. No blood iſſues from the cords, nor does the animal *ſeem* to feel any pain. The hooks are now removed, the wound cloſed; the feathers which were plucked off are ſtuck upon the wound with the blood; and the wing being put down on it, the animal walks off as if nothing had happened Another correſpondent having taken up my former ſignature K, I beg leave to ſubſcribe myſelf your very humble ſervant,

October 14. 1804. K. k.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Cultivation of the Jeruſalem Artichoke.

SIR,

IT has often occurred to me that the *Jeruſalem artichoke* might be advantageouſly cultivated on moſſy ſoil. At Sir John Shaw Stewart's garden at Ardgowan, they are remarkably luxuriant in a wet ſoil, compoſed wholly of a black peat earth. In Auguſt laſt, the ſtems of the plants were ten feet high, and as thick upon the ground as they could ſtand. From my experience of them in my own garden, I can ſafely ſay that their roots are not injured by froſt; and that the tops, both in a dry and green ſtate, are greedily devoured by horſes and cattle. It is needleſs to ſay the ſame of the roots; they are by ſome people preferred to the potato itſelf. They are propagated in the ſame manner as the potato, and alſo by the ſtrings or runners, which connect the tubercles or bulbs together. In gardens, when once introduced on a ſpot, they cannot eaſily be got rid of. It is probable, however, that this would prove no objection in wet moſſy ſoils, as they would be a great advantage among the hay, by keeping it open and making it dry ſooner, beſides affording a greater quantity of the dried material; and in paſture they would eaſily be kept down by the bite of cattle. The roots or bulbs of this plant are eaſily procured from the nurſerymen at 2s. per peck;—one peck will give triple the number of ſets afforded from a peck of potatoes.

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* A ſlip of whalebone would do.

† A horſe hair would anſwer the purpoſe.

potatoes.' I think *moſs* improvers might try this root, and favour the public with the reſult of their experiments. I am, Sir, yours, &c. DENDRONIA.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Animadverſions on the Propoſal for Erecting Farming Schools.

SIR,

WHATEVER may be defective in the following remarks, I hope will in ſome meaſure be excuſed, when I aſſure you the writer is nothing more than one of thoſe ſlovenly, careleſs beings called *ploughmen*. In my humble lot I am an occaſional reader and great admirer of your very entertaining Magazine; but never dreamed of becoming a correſpondent till ſomething appeared in your laſt which nearly concerns both myſelf and whole brotherhood, viz. Elrona's propoſal (Vol. V. p. 332.) for eſtabliſhing farming ſchools where ſervants might be taught every part of their buſineſs. The reaſons he gives for ſuch ſchools are, that farming ſervants in general are careleſs, ſlovenly, and ignorant. In ſhort, all the faults that ever follow a poor man's caſe, are rolled, without mercy, upon our backs—a heavy accuſation indeed, and may juſtly ſuggeſt that important queſtion, 'What ſhall be done to ſuch unprofitable ſervants?' Whether your correſpondent's friend has worſe ſervants than any other farmer, or whether he is a practical farmer himſelf, or merely a gentleman from town, and more ready to judge from appearance than facts, I know not; but certain I am, that when our town gentry, dreſt in all the ſplendour that conſtitutes the faſhion of the day, are pleaſed to take a jaunt into the country, and ſee us, poor devils, toiling at plough or cart under a ſultry ſun, our faces covered with ſweat, and wan as the inhabitants of the torrid zone, with our courſe ſhirts and breeches of hodden grey, they are apt to conclude that we are creatures of another kind, and only fit to be ranked with our kindred clods around us. With all due reverence to the ſpruce merchant with a fine coat, would he exchange ſituation with us for but one hour, he would ſoon find himſelf degenerate into the appearance of a ſhabby ploughman, and would learn from experience, that our ſlovenly-like manner is more the conſequence of our hard ruſtic labour, than of any defect in our natural diſpoſitions. I ſuppoſe it is from ſuch ſuperficial obſervers that the word *ploughman* is ſet down for every thing that is ignorant, ſluggiſh, or ſlovenly, and that we are ſtigmatized with the epithets of *ruſtic*, *clodhopper*, *clown*, &c. With the moſt ſovereign contempt for ſuch opinions, [illegible]m, that as our buſineſs yields to none on the face of the [illegible]ſefulneſs, ſo it is no leſs honourable; and that, ſhould ever

ever the period arrive when juſt notions of honour are entertained among men, a place betwixt the plough-ſtilts will be ſought with more keenneſs than a poſt at the head of an army, and brighter beams of glory adorn the brow of that man who makes the barren heath to wave with yellow grain, than of the ſavage warrior who covers the groaning earth with thouſands ſlain.

With regard to the perfection of our ſervices, I confeſs that, like every other claſs of men under the ſun, we are not what we ſhould be; but when the vaſt quantity of labour, which the operations of agriculture require, and the number of hands therein employed are taken into conſideration, it will perhaps appear that the farmer receives as large a quantity of labour, in proportion to the price he pays for it, as any other claſs of men whatever; and wherever the improved ſyſtem of agriculture is carried on under judicious farmers, who underſtand their own buſineſs and ſomething of human nature, conſequently how to manage ſervants, it will be found that labour is performed to a degree of perfection far from being deſpicable, and that too with a pliableneſs and alacrity which muſt be grateful to the heart of a good maſter. With reſpect to our moral characters as honeſt men, our fidelity and attention to our maſters' intereſts, we are not afraid to ſtand a compariſon with any other claſs of labouring ſervants; and perhaps, upon impartial inveſtigation, it will be found that no deſcription of maſters have fewer depredations made on their property by ſervants; and I am ſure we have never been guilty of formidable and unlawful combinations to raiſe our wages.

Though I am not afraid of your correſpondent's general charge againſt my brotherhood, and have endeavoured, in ſome meaſure, to reſcue them from his heavy accuſations, yet I by no means call in queſtion the utility of farming ſchools. It is probable that, if conducted upon right principles and by judicious men, they may have the ſame good effect as regular apprenticeſhips have in producing perfect workmen in any other buſineſs, though I fear few of us will be able to pay heavy prentice fees. I agree too with your correſpondent in thinking that, among the various cauſes of bad ſervants, bad maſters is the chief, and cannot help remarking that the reformation ſhould begin here; for if farm ſervants in general are bad, it follows, from your correſpondent's ſtrain of reaſoning, that the maſters in general are not good. I would beg of him to point out ſome method for the reformation of maſters, and then the buſineſs will go rapidly forward. It would be vain to ſend a young man from ſuch a ſchool as your correſpondent propoſes, and place him under a haughty domineering tyrant; as ſuch a perſon can never have a good ſervant, conſequently the education of the youth would be totally loſt.

I deſigned to point out ſome of the reſpective duties that ought to ſubſiſt betwixt a farmer and his ſervants, chiefly the reſult of my own experience during 20 years ſervice under various maſters of different characters and tempers; but, uncertain what may be the fate of what I have already written, ſhall reſt myſelf contented with the idea that I have ſaid enough to convince you that I am but an ignoramus ploughman. Be this as it may, tired with the labours of the day, a ſore back, a ſtiff hand, and with only the bottom of a chair for my writing-deſk, I am obliged, in conformity to my low table, to write on my knees; and, in this ſubmiſſive poſture, I conclude, imploring your conductorſhip will re-touch this paper with your maſterly pen, and inſert it in your Magazine, as it is probable that neither I, nor any of my brotherhood, will trouble you again for half a century to come.

I am your's, &c.

A FIFESHIRE PLOUGHMAN.

Pariſh of Markinch, 22d Oct. 1804.

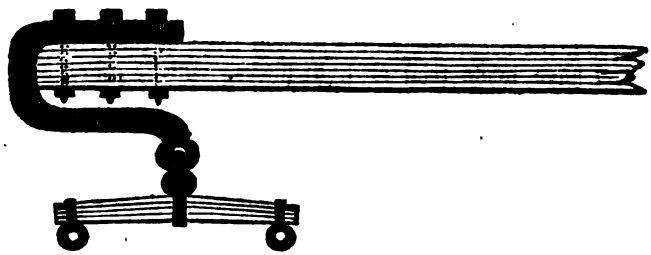
TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On ſtopping Thraſhing Machines drawn by Horſes from low Starts.

SIR,

OBSERVING, in your Magazine for February (vol. v. p. 19.), a letter ſigned R. r. r., ſtating the difficulty found in ſtopping a thraſhing machine drawn by *traces* from *low ſtarts*; in caſe the ſame difficulty ſhould occur to any other perſon having a machine of that conſtruction, I beg leave to obſerve, that the remedy is eaſy and ſimple. It is only carrying traces from the breaching to the bar, or *ſtart* (as your correſpondent calls it), in *front* of the horſe. The above method, I know by experience, anſwers perfectly well. Your correſpondent alſo ſtates, that it may be inconteſtably *demonſtrated*, that, on a ſtart of 13 feet long, the horſe which draws by traces operates with a lever, at leaſt three feet ſhorter in effective ſtrength, than when fixed to perpendicular limbers on each ſide of his ſhoulders. This demonſtration would, I doubt, be more difficult than ſtopping the mill, provided the point of draught be properly applied to the lever. Your correſpondent acknowledges, that he is no great mathematician; and, being pretty much in the ſame predicament myſelf, I ſhall only obſerve (what I believe is very generally known),

known), that the nearer the point of purchaſe or draught is to the *end* of the lever, the greater will be the *power*. Now, by bringing a ſtout bar of iron round the extremity of the lever, as in the following ſketch,



the point of draught is brought very near the utmoſt extent of the lever; by which means the power of the horſe is much increaſed: and I beg leave to add, that the nearer the end of the *ſtart* can be brought *to the machinery*, the more purchaſe the horſe will have: but all this is the buſineſs or province of the *mill-wright*. However, if any hint I have given ſhould be of the leaſt ſervice to the practical farmer, my purpoſe will be anſwered.

I alſo beg permiſſion to recommend to the attention of gentlemen or farmers, who may have occaſion to erect farm or other buildings, in an expeditious and cheap method, to peruſe a treatiſe on the method of building, very generally practiſed in the Lyonois, and in many places of the Levant, called, technically, about Lyons, *Piſé*. * The treatiſe, in French, is by M. François Cointeraux; but an extract from it is given in Engliſh by Henry Holland, Eſq. in the Appendix to the 1ſt volume of Communications to the Board of Agriculture, which is quite ſufficient for ſhewing how the work ſhould be executed. This method of building has already become very general with many gentlemen in England. It is very durable (will laſt 100 years), may be very ſoon finiſhed, and is extremely neat in its appearance. But I refer to the before-mentioned treatiſe or extract. As *materials* are ſometimes ſcarcely to be had, and maſons' wages are ſo extravagantly high, it may be worth the attention of many.

Now, Sir, if you think any thing contained in this letter can be of the ſmalleſt ſervice to gentlemen or farmers, you will publiſh it, and oblige,

Your conſtant reader,

T.—t.

* Building in *Piſé* is a method of ramming *earth* in moulds or frames.

The following Letter has lately been received from the ſame Gentleman.

SIR,

I ſome time ago wrote you on the ſubject of ſtopping a thraſhing machine drawn by traces from low *ſtarts*, by carrying traces from the breaching to the ſtart in front of the horſe; ſince which, I have made trial of light ſhafts, which, I find, anſwer much better than traces. As the ſimpleſt improvement is often longeſt overlooked, I ſhall be glad if what I have now mentioned turns out ſerviceable to farmers, who may have ſmall machines of the low conſtruction.

T.—t.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On ſowing Parſley, as a Green Crop for Horſes and Cattle.

SIR,

OBSERVING in your Magazine, vol. 5. p. 453, ſome ſuggeſtions by your correſpondent Agricola, recommending the ſowing of the common garden parſley among graſs ſeeds, as affording a food which is preferred by horſes and cattle, and thought particularly conducive to the health of ſheep, it recalled to my memory an anecdote I have often heard from my father, which occurred to him when in the botanical garden at Edinburgh, in the time of the late Dr Alſton.

He obſerved a toad feed regularly every morning on a bed of parſley for ſome weeks in the ſpring, which, when he firſt diſcovered, was apparently ſickly, much emaciated, and weak, but, in the courſe of a ſhort time, ſeemed to recover both health and ſtrength. Though you may probably think that its proving a medicine for toads is no great recommendation of parſley, yet I hope you will not be diſpleaſed at being informed of what appeared to me a curious fact, eſpecially as it affords, perhaps, a new teſtimony of the general ſalubrity of that herb. Might not the curled parſley be preferable to the common? It has a greater reſemblance to the clover plant when young, would produce, in my opinion, a weightier crop, be equally hardy, and as eaſily cultivated: But this is only my own ſuggeſtion, which I beg you will excuſe.

I am, Sir,

Your moſt obedient ſervant,

AGRICULTURÆ AMICUS,
ſupra Triviotam.

Jedburgh, 3d Dec. 1804.

TO

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

REQUEST that you will inſert the following queries in your
gazine, which probably may be the means of procuring uſeful
rmation on the ſeveral topics therein embraced. It is proper,
ever, to inform you, that moſt of the queries are extracted
a foreign publication; though a previous appearance can-
in the leaſt leſſen their value, or preclude inveſtigation,
ng your numerous correſpondents.

Query 1. What is the nature of bogs, marſhes, and ſubſoils,
he ſeveral parts of the kingdom? how are they formed?
nce proceeds the water with which they are filled? is it
nant, and on what account? do we find turf in theſe bogs,
at what depth? what is the beſt uſe to be made of them?
might not ſome machine be invented to leſſen the expence
aining theſe bogs?

Which is the beſt method of bringing a drained bog into
e, and what crops is it beſt at firſt to ſow on it? What trees
lants thrive beſt in a moiſt ſituation?

By what means can wood, eſpecially fir, be rendered leſs
uſtible; and may it not, by ſome preparations, be preſerved
decay and worms? and which is the beſt ſeaſon and manner
lling trees?

In what places are the ſeveral kinds of marl found, at what
h, and what are their qualities, and to what uſes are they
ied?

Do we not ſometimes find under the ſurface a different kind
rth, proper to ſerve as a manure to the ſoil?

In what manner can the nature of land be judged of by the
ts it produces, and their vigour?

How are the ſeveral kinds of artificial paſtures to be uſed
e beſt advantage; and what graſſes ſucceed beſt in the ſeve-
rts of ſoil? What noxious plants grow in our fields?

What is the beſt method of preſerving graſs, and deſtroy-
weeds and fog, in meadows and paſtures?

In what manner are rough meadows and paſtures beſt
led?

. What are the precautions neceſſary to be taken in weed-
wheat?

. What remedies are beſt adapted to the diſtempers of wheat
re it ſpindles?

12. Which is the most advantageous method of cutting and getting in grain at harvest? Might not some machine be invented to cut the corn, and gather it into sheaves, so as to save the laborious and expensive work of the sickle *?

13. What construction is best for a granary, so as to keep corn in a small compass, and without danger?

14. In what manner can corn be best guarded against the ravages of insects, &c.?

15. What precautions are necessary to prevent corn from degenerating, so as always to have good seed? Is it best to buy the choicest at market, respect being paid to the nature of the soil it grew on last, or to choose the most perfect our own crop can yield, &c.?

16. What are the different sorts of implements and utensils employed in the work of husbandry in each county? †

17. What is the best form of borers to discover the quality and depth of the soil, &c.?

18. What is the best form of a steelyard for weighing live animals, such as oxen, sheep, and swine?

19. What is the best form of stables, cow-houses, ox-stalls, covered sheep-pens, &c. regard being had to the convenience of situation with respect to the dwelling-house, &c. the saving trouble in attendance, the health of the cattle, the saving of dung, &c. &c.?

20. What kind of pastures agree best with sheep? What are their distempers, the causes of them, and their remedies? What is the best winter fodder for them?

If these queries appear in your Magazine, I may probably write you afterwards on other subjects, and am,

Yours,

J. B. C. E—T.

Northumberland, April 13.

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* Thomas Brown of Alnwick, last year (1803), invented a machine for cutting and gathering the corn into sheaves, but his ingenious machine did not altogether answer the intended purpose. It is said, he intends to make some improvement upon the principle; but, not having heard further about it, I propose the above query.

† Any of your correspondents who shall answer the above queries, would greatly enhance the value of answers, by giving an accurate draught and description of the implement described, which should be plain and easily understood.

TO

An improved Rotation of Cropping on the rich Soils of Eaſt Lothian recommended.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIR,

I OBSERVE in your Magazine, vol. v. p. 279. ſomething ſet forth reſpecting the moſt approved rotation of crops practiſed upon the deep loams, or rich ſoils of this county; but paſture graſs ſeems to be entirely excluded from any of the ſyſtems therein recommended, except in one, where it is very improperly introduced too remote from the fallow and dung. It is well known that the beſt lands, through exceſſive cropping, whatever the alternatives may be, will loſe much of their productive nature, particularly where a ſufficient quantity of dung and lime cannot eaſily be procured, without undergoing a regular courſe in paſture graſs, by which alone they will regain the moſt nutritive ſubſtances, and return into the regular courſe of cropping, fully prepared to renew the moſt luxuriant crops. Therefore, ſuppoſing a farm to conſiſt of 360 acres in all, of the beſt ſoil, viz. 240 acres of which in ſummer fallow and crop, and 120 acres in paſture graſs, the particular ſyſtem of cropping that I would recommend is as follows:

1. { 20 Acres plain fallow.
   { 20 Do. turnips.
2. { 20 Do. wheat after plain fallow.
   { 20 Do. barley after turnips.
3. { 20 Do. red clover and annual ryegraſs after wheat for one year cutting.
   { 20 Do. the uſual kinds of clover and perannual ryegraſs after the barley, for paſture graſs, which may alſo be cut for hay the firſt year.
4. { 20 Do. oats after the red clover and annual ryegraſs.
   { 20 Do. oats after the oldeſt paſture graſs upon the farm.
5. —40 Do. drilled beans and peaſe after oats.
6. —40 Do. wheat after do.

From an attentive peruſal of the above, it will be obſerve by every experienced farmer, that ſo ſoon as that rotation properly eſtabliſhed (to whom it may be unneceſſary for me point out any particular method to obtain that end, as the pl

muſt be varied agreeable to the many different ways in which a farm may be managed for the time being. For inſtance, ſuppoſing a farm to be newly entered to, where the outgoing tenant is bound to leave little or no graſs in good order, in which caſe it will be neceſſary to ſummer-fallow a much larger proportion than is uſual for the firſt and ſecond year at leaſt, by which means the rotation alluded to may as ſoon as poſſible be got into; and if, on the other hand, the outgoing tenant is bound to leave a large proportion of graſs ſown out with the firſt crop after ſummer fallow, the rotation may be immediately entered upon, as recommended, ſo that the crop upon the farm will always, with little variation, (for I am aware that a bad ſeaſon may at times cauſe a difference), ſtand thus: 20 acres turnips, 20 ditto barley, 60 ditto wheat, 40 ditto oats, 40 ditto drilled beans and peas, 40 ditto young graſs, which, including 20 acres of plain ſummer fallow, and 120 acres of old paſture graſs, makes in all 360 acres; the ſame number of acres in old paſture graſs being annually kept up by replacing, at the bottom of the liſt, 20 acres of new, in lieu of the 20 acres of the oldeſt, taken off the top of the liſt, and put under the plough. It will alſo be obſerved, that, in courſe of the firſt ſix years cropping, ſuppoſing the paſture graſs to be all ſown down with the barley crop, the plain ſummer fallow will have undergone a different courſe of cropping, therefore it is only reverſing it at the commencement of the ſucceeding ſix years, by beginning the rotation upon the former plain fallow with turnips, &c. which, upon the whole, forms ſuch a change of ſyſtem upon the ſame farm, which it is univerſally allowed that nature delights in, that, in my opinon, can hardly be equalled; beſides, there can be no doubt that the paſture graſs upon ſuch a ſoil will turn out to good account, for the purpoſe of feeding early ewes with lamb, breeding cattle for the turnip ſtall, &c.; by which it will appear, that the farmer's intereſt is not confined to alternate white and green crops alone (as endeavoured to be impreſſed upon the minds of the public by your correſpondent, like as the A, B, C, is confined to the capacity of children of two or three years old), but it is to a certain degree poiſed betwixt cropping and feeding; ſo that if it ſhall happen, as it ſometimes does, that, from the effects of an unfavourable ſeaſon, a deficiency of crop enſues, both in quality and quantity, while, at ſame time, the graſs continues good, or that the corn (be the crop what it may) ſhall be ſelling at lower prices than it is poſſible he can afford it, while live ſtock, of all kinds, are ſelling at ſuch high prices, he will not feel the deficiency ſo much as he whoſe intereſt entirely depends upon a corn crop. I could mention ſeveral more rotations, into which I conceive

paſture

paſture graſs might be introduced with ſucceſs upon worſe ſoils; but as I am but a young farmer, and may have ſaid enough already to be found fault with, and as I am aware there are many old agriculturiſts of much greater abilities than me, that may deſcribe them to better purpoſe, I ſhall leave the reſt to them for the preſent; but if, by their ſilence, they ſeem backward in endeavouring to bring paſture graſs into more repute, I may trouble you with a little more of my thoughts upon the ſubject, if you ſhall think this worthy of a place in your next publication. I am, Sir,

Your ſincere friend,

Eaſt Lothian, Oct. 22. 1804. T. B.

FOR THE FARMER'S MAGAZINE.

Mode of making Potatoe Bread, in ſome Parts of the Highlands of Scotland.

At a time when the price of bread is likely to be ſo high, and potatoes are ſo abundant, the following mode of preparing potatoe bread may not be unacceptable to ſome of your readers.

In the northern Highlands of Scotland, they make very good potatoe bread in the following manner.

The potatoes are ſcraped well when raw, for, if they are boiled, and then peeled, the potatoes do not take the ſame conſiſtency.

They are then thoroughly boiled and maſhed, with a little ſalt, and made into the ſhape of a loaf, or of a large pudding, and laid by to cool for twelve hours.

It is commonly done at night, to be uſed next day.

When wanted to be uſed, the potatoes, thus prepared, are cut either into thick ſlices, and eat with butter put into the middle when hot, or into thin ſlices, and eat as bread. The ſlices, whether thick or thin, are put on a brander, and very well toaſted, and the bread is ſweet and wholeſome.

S.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the preſent State of Farming in Eaſt Lothian, compared to what it was in former times, with ſome Remarks upon the Return made from Capital Stock inveſted in Agriculture.

Sir,

Few papers in your miſcellany have excited more general notice in the diſtrict wherein I reſide, than the *Comparative View of Farmers fifty years ago, and at the preſent day*, vol. v. p. 387. and

and it muſt be owned that ſuch ſtatements, if well executed, always ſtand a good chance of being favourably received, becauſe they come home to the heart and feelings of agricultural readers. The paper in queſtion engaged the converſation of every company for ſeveral weeks after it was publiſhed; and I only join the general voice when I ſay, that a more correct and enlightened view of ſociety among the cultivators of the ſoil could not have been furniſhed. The writer, whoever he is (for this point remains unaſcertained), poſſeſſes an intimate knowledge of local facts and circumſtances. He is well acquainted with books, and ſeems gifted with a mind capable of making a good uſe of them. He embraces a wide range of obſervation, and his remarks are made with a degree of animation, perhaps unaptly calculated to make us believe, that his birth ſtands ſo far back in the parochial records, as his premiſes ſeem to intimate.

But while I am diſpoſed to rank the author of the "Comparative View" high in the ſcale for genius and ability, and to conſider his performance as throwing much light on the ſtate of ſociety at different periods, I am not altogether ſure, whether his real object can be viewed as meritorious, or whether his concluſions will prove beneficial to the occupiers of land. Perhaps I miſtake his meaning, though little doubt need be entertained concerning the interpretation which will be put upon it by thoſe who are concerned in the letting of land. Indeed, if "farmers are the moſt thriving claſs of ſociety, and thoſe of Eaſt Lothian the moſt thriving of that claſs," the legitimate inference is, that land, notwithſtanding the high value of labour, and increaſed and increaſing amount of public burdens, is ſtill under-rented.

With this view of the ſubject on my mind, but without intending to call in queſtion the facts and circumſtances ſtated by your correſpondent, which, on the whole, are correctly given *, I requeſt indulgence, whilſt I offer a few obſervations upon the ſtate of farming in the diſtrict chiefly noticed. 1. I ſhall conſider the ſtate of farming practiſed there in former times, and ſhow that thoſe *then* concerned in that buſineſs were not entitled to the like advantages as may *now* be juſtly claimed by their ſucceſſors. 2. Endeavour to aſſign ſome cauſes why farmers, at the preſent day, are entitled to expect greater profits than thoſe enjoyed by their predeceſſors. 3. Say a few words concerning

* The rent of Long Niddry is rated half a boll of wheat, and half a boll of barley, higher than it really is. We believe the rent of Craigiclaw is alſo exaggerated.

ıg the gains and profits from farming land, and ſhow that are inferior to thoſe which may be obtained from inveſting ke capital ſtock in trade or manufactures. Laſtly, Some hed obſervations ſhall be given.

In former times, ſay forty or fifty years ago, farming in Lothian was generally carried on upon a ſmall ſcale; the f farms rarely exceeded 200 acres, and theſe were gene- laboured by 8 or 12 horſes, yoked in two or three ploughs. implements of huſbandry then uſed were not numerous, f a plain and ſimple conſtruction, cheaply purchaſed in the nſtance, and eaſily repaired afterwards. In this ſtate of s, to ſtock even an ordinary farm did not require much y. Perhaps it would not be wide of the mark to eſti- forty ſhillings per acre, as a ſum ſufficient for carrying he huſbandry then practiſed. But, be this as it may, the cheapneſs of every article, the few improvements then , and the low rank ſuſtained by cultivators in the ſocial are attentively conſidered, it muſt appear, almoſt as a ſelf- nt truth, that the capital formerly employed in cultivating round was but trifling and inconſiderable.

the profits from farming ought to be, and generally are, ortionable to the extent of capital ſtock employed, the cul- ırs of former times neither received, nor did they expect, a return from their reſpective undertakings. They lived in fined or contracted ſphere, joined little in ſociety, and ſel- ſtepped beyond the limits of their ſeveral poſſeſſions. Their ys were not great, but their incomes were proportionally ; nor had they any claim to great profits, the whole cir- :ances under which they were ſituated being duly conſidered. : capital ſtock, moderately ſpeaking, did not exceed one h of what is now required to ſtock a farm of ſimilar ſize, ght eaſily be demonſtrated, could a doubt remain on the ct. The increaſed amount of capital ſtock ariſes partly the depreciation which has taken place in the value of y, or, which is the ſame thing, and more agreeable to ion ideas, to the riſe which has taken place on the price ery article uſed in the culture of land; but more particu- from the ſuperior quality and number of the implements ther articles employed; as, for inſtance, ſaddlery ware for orſe is now more expenſive than what formerly would have d out the horſes of four or five ploughgates. In modern , even more money has been laid out in erecting a thraſh- nachine, than what formerly would have half-ſtocked the :ular farm on which it is ſituated.

Some of the cauſes why farmers, at the preſent day, are entitled

entitled to greater profits than their predeceſſors, are the following. The capital ſtock neceſſary for carrying on improved huſbandry, as already ſaid, is tripled in ſome caſes, and quadrupled in others, which is of itſelf a good cauſe; but a better one may ſtill be found in the increaſed ſize of farms, a practice which has of late extenſively taken place in this diſtrict. This increaſed ſize has occaſioned capital ſtocks to be put into action, the very intereſt of which would have enabled the owners to live comfortably, even had they bound up their talents in a napkin. Are not ſuch people entitled to every comfort which life can afford? and have they not a valid claim to the poſſeſſion of good houſes, well-ſtored larders, and, in ſhort, to every thing enjoyed by the merchant or manufacturer? Surely they have; and thoſe who would, either directly or indirectly, attempt to limit their comforts, or to deprive them of their ſtock, are neither friends to private right, nor to the improvement of the country. If farming, whatever circumſtance ſhould occaſion ſuch a revolution, is reduced to a condition which deprives the owner of a ſuitable recompence, capital ſtock will run into other channels; and improvements, from the inability of the occupiers, will ceaſe to be undertaken, far leſs to be ſucceſsfully executed.

If we turn our eyes over the diſtrict, and contemplate what has been done of late years towards its improvement, few doubts will remain as to the advantages derived from capitaliſts embarking in rural undertakings. Such may be conſidered as having received a liberal education; as free from prejudice, the bane of improvement; as diſpoſed to introduce new practices, and enjoying the fulleſt opportunities for acquiring knowledge in every branch of rural art. Poſſeſſed of ſufficient ſtock, they are able to go through with every practicable plan; and, even ſhould ſuch not altogether ſucceed, material injury will not be ſuſtained by them from a partial failure. When perſons of this deſcription embark in rural undertakings, proprietors of land have cauſe to rejoice. Good houſes are built, enclo-ſures reared, waſte land cultivated, moraſſes drained, and meliorations of every kind executed much to the benefit of the property in all time coming, but eſpecially when the leaſe, under which they were executed, arrives at a concluſion. Your correſpondent obſerves, "that the beſt farm-houſes in the county have been built by tenants at their own expence, with the ſpirit of proprietors, though perhaps indeed, with more taſte than prudence." The obſervation is juſt, and corroborates what I am urging in favour of capitaliſts. Indeed, almoſt every one of the circumſtances ſtated in the "Comparative View" apply to

them

them only, and not to the great body of cultivators. How can ſmall or poor tenants ornament or improve extenſively, when ſuch things are inconſiſtent with their ſtate and circumſtances. According to the rate of modern rents, a ſmall tenant can do little more than procure ſubſiſtence for himſelf and family, therefore is entirely incapable of executing ſubſtantial improvements. To expect that he would build an elegant houſe would be highly unreaſonable; and yet inſtances are not unfrequent of tenants of a different deſcription, upon leaſes not exceeding 21 years, having expended four or five hundred pounds in erecting a houſe, which is neither more nor leſs than paying a rent of forty pounds, or upward, for family accommodation.

As every claſs of the community have, in the age wherein we live, advanced a ſtep forward, the farmer, even had he remained circumſtanced as formerly, might fairly lay claim to a ſhare of the general improvement. But when to this is added the increaſed ſize of his poſſeſſions, the increaſed value of his ſtock, viewed both in its natural and improved ſtate, and the increaſed outlays attendant upon modern farm management, he is indiſputably warranted to expect a proportional increaſe of profits. Theſe profits he may either expend in purchaſing the comforts, or, as ſome may ſtyle them, the luxuries of life; or he may accumulate them for the benefit of his poſterity, as to him appears moſt proper and expedient. That he is entitled to live better, or which is, in fact, the ſame thing, to greater gains than his predeceſſors, hardly requires to be demonſtrated; though I have thought it neceſſary to aſſign a few of the cauſes which entitle him to an increaſed compenſation or reward.

When your correſpondent ſpeaks of the numerous comforts enjoyed by farmers, and makes an inference that they are not leſs at eaſe than their forefathers, both his premiſes and his deductions are unqueſtionably correct. I lament, however, that he ſtopped ſhort, and did not extend his concluſions to their proper magnitude. With "greater capital and ſuperior ſkill," as admitted by him, they would ſeem entitled to a greater ſhare of comforts; or, in other words, their gains and profits ſhould exceed thoſe enjoyed by their forefathers. To be ſure, he may be of this opinion for any thing expreſſed to the contrary in the "Comparative View," though there is not a paſſage therein which can be uſed in verification of ſuch a ſentiment. He may tell me that his principles are in uniſon with thoſe expreſſed in this paper, and that he is equally as eager as I am that the farmer ſhould be handſomely remunerated. I hope he is. But it is neither his principles nor his premiſes which I conteſt. It is the application of theſe principles, and the erroneous uſe which may be

be made of them by others, that I oppoſe. The farmers of Eaſt Lothian pay rents as high, if not higher, than done in other diſtricts; their capital ſtocks, generally ſpeaking, are not exceeded by thoſe of their brethren elſewhere; their management will ſtand a compariſon with that of any county which has come under my inſpection; conſequently if their ſituation is comfortable, and their circumſtances opulent, ſuch things are no more than what they are juſtly and equitably entitled to. I add an anecdote which may ſerve to amuſe your readers. Two years ago, ſome reſpectable Engliſh farmers viſited this diſtrict, and viewed the ſtate of huſbandry with conſiderable attention. I put a queſtion to one of them, namely, What he thought of our huſbandry? and his anſwer was, "Why, my dear Sir, if you Scots farmers came to England, and got our farms, and paid our rents, you would make eſtates; but if we got your farms, and paid your rents, we would all go to jail. That is my opinion." And certainly a ſtronger and more emphatic one could not have been given.

3. That the gains and profits from farming are inferior to thoſe which may be procured from inveſting the like capital ſtock in trade or manufactures, ſhall now be elucidated.

The capital ſtock employed in cultivating land can ſeldom be turned over more than once in a year; and in many caſes, particularly where farms are wholly arable, fifteen or eighteen months muſt elapſe before a ſingle halfpenny expended in the culture of corn can be returned to the owner. Where ſubſtantial improvements are executed, ſuch as fencing, draining, liming, and the like, a return can only be procured at a more diſtant day; which things neceſſarily leſſen the value or produce of agricultural ſtock. Even at the diſtant periods we have mentioned, when returns can be expected, it rarely happens that they exceed 10 *per cent.* of the capital employed: and as this capital cannot, at the moſt, be turned over more than once in the year, except where ſtock huſbandry is practiſed, the amount of the return, in ordinary ſeaſons, is unqueſtionably ſmall.

But none of theſe things affect the trader or manufacturer. The capitals of ſuch may be turned over three, four, or five times in a year. Indeed, the moment that the one purchaſes, or the other manufactures, he may convert his commodity into money, and commence a freſh ſpeculation. Hence a capital comparatively ſmall, is ſufficient for carrying on mercantile concerns; at leaſt the ſame extent of capital, as neceſſary for the agriculturiſt, will enable the trader and manufacturer to go through with a more extenſive buſineſs, from the facility which both enjoy,

enjoy, of turning their goods into caſh almoſt as often as they pleaſe.

Again, the merchant and the manufacturer can avail themſelves much more of credit than is practicable in the caſe of the agriculturiſt. The articles which he has to purchaſe for farm-ſtock can rarely be had, unleſs for ready money. He cannot go to market without carrying money in his pocket, and even his advances on account of wages are a heavy burden of themſelves, eſpecially where improvements of any extent are in hand. Theſe circumſtances are not felt in the trader's caſe, becauſe cuſtom or uſage has eſtabliſhed a certain length of credit, which will not be refuſed to any one, unleſs he is either unknown or undeſerving of confidence.

But, without inſiſting upon a point which will not be much diſputed, ſome circumſtances may be ſtated, more nearly a-kin to facts than to abſtract reaſoning. It is well known, that much more money has been realized by traders and manufacturers, than by agriculturiſts. The latter may enjoy all the comforts of life, but rarely attains to the poſſeſſion of its ſuperfluities. We have not ſeen above one in the hundred of farmers, in our day, even in the moſt opulent diſtricts, get the length of purchaſing landed property; whereas, go to the neighbourhood of an extenſive mercantile town, and you will find the ground almoſt wholly in the hands of thoſe engaged in trade. In a word, it will be found, that, in general caſes, the capital ſtock inveſted by agriculturiſts would have yielded a far greater return, had it been devoted to trade or manufactures; and that it is more owing to the pleaſure and amuſement enjoyed from rural life, than to the gains and profits ariſing from its purſuits, which entices ſo many people to become its votaries.

Allow me now to conclude with a few detached obſervations.

Since the remoteſt period to which hiſtory reaches, perhaps ſince the firſt diviſion of territorial property, a violent prejudice or jealouſy has been entertained againſt the poſſeſſors of land, by thoſe who had not come in for a ſhare; and this prejudice, which appears to have been handed down from father to ſon for numberleſs generations, has, in later times, been transferred from proprietors of the ſoil to thoſe who occupied it under them. Such, though, ſtrictly ſpeaking, they may be ranked as the firſt of manufacturers, have in no country been held deſerving the like encouragement with mercantile people. Fiſcal regulations are to be found in every ſtatute-book hoſtile to their intereſt; and ſeldom has the agriculturiſt been regarded as an object of public favour. With many people, even with thoſe whoſe minds are ſufficiently liberal in other matters, his proſperity is conſidered

as

as inconſiſtent with the general proſperity of the country; though, if ſuch would conſider the ſubject in a diſpaſſionate manner, they would be led to acknowledge, that no country can flouriſh where the firſt of the arts does not proſper or prove ſucceſsful. When the farming trade is at its loweſt ebb, that is, when the commodities therein produced are ſold at an under rate, what gratification is felt by thoſe who call themſelves the public, who ſeldom reflect that rural proſperity enſures them in a full ſupply of the neceſſaries of life, and affords employment to a countleſs multitude, who would otherwiſe be unable to earn their daily ſubſiſtence?

Again, with many people, every comfort above mere neceſſaries, enjoyed by the farmer, is viewed as an abſtraction from the general ſtock. The farmer is ſeldom conſidered in the ſame light with traders or manufacturers, or ſuppoſed to poſſeſs an equal right with them to the fruits of his labour, either in body or mind, or to the profits of his capital ſtock. My good old friend, Sir David Dunder, uſed to ſay that farmers were well off, if they got plenty of milk and haſty pudding; and it has been aſſerted, that he often uſed ludicrous methods to aſcertain how they fared. Whether theſe things be true or not, is a matter of no importance. It is ſufficient for my argument, that the public diſpoſition is too much inclined to limit the comforts of thoſe engaged in agricultural concerns. Though ſuch a diſpoſition is by no means uncommon, I am far from ranking your correſpondent as under its influence, though I do not conſider it as an improbable circumſtance, that many parts of his intelligent and amuſing communication may be uſed by others in a miſchievous way. Landed proprietors may view the ground as under-rented, therefore attempt to ſcrew up their demands to a pitch which may ruin cultivators altogether, whilſt the purchaſers of farm produce may be led to infer, that its articles are too high, and that prices ought to be diminiſhed.

On theſe accounts, I have extended this paper to a length which ſome people may perhaps conſider as unneceſſary. I have attempted to ſhow, that the increaſed proſperity of thoſe engaged in agriculture ariſes entirely from the increaſed ſize of farms, and the increaſed capital employed in farm culture, and that theſe circumſtances entitle thoſe concerned to greater profits than were gained in former times. I have alſo ſhewn, that the capital inveſted in agriculture makes an inferior return to that which is devoted to trade and manufacture, and that the jealouſy or prejudice entertained by the great body of mankind againſt thoſe engaged in agricultural purſuits, is the true ſource whence proceeds every endeavour to limit the profits of rural practitioners.

Before

Before I am done, it may not be improper to add that farming, on the whole, is thriving and flouriſhing in this diſtrict; but, were it otherwiſe, the great body of inhabitants would neceſſarily be reduced to ruin and miſery. Very little trade, in the common acceptation of the word, is carried on amongſt us, nearly the whole of the capital ſtock being devoted to rural purpoſes, and this capital may ſafely be eſtimated at half a million, ſtating excluſive of what is reſerved for extraordinary emergencies. Owing to this ſuperior capital, Eaſt Lothian farmers are enabled to weather adverſe ſeaſons and depreſſed markets, which often run their brethren aſhore in other diſtricts; and it deſerves to be remarked, as a curious circumſtance, that, at the very identical period when your correſpondent held them up as *the moſt thriving of a thriving claſs*, a conſiderable number were unable to make good their engagements out of the crop in hand; in other words, to pay the rent and burdens connected with it. Theſe engagements were no doubt fulfilled, though, in many caſes, from funds formerly accumulated, and perhaps meant for other purpoſes. I am your's, &c.

AN EAST LOTHIAN MAN.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Benefit of rolling Turnips, when infeſted by the black Caterpillar.

SIR,

EARLY in July laſt, the ſmall black caterpillar, ſo common at that time over all the country, made its appearance in a field of turnips of mine, and in a ſhort time devoured every green leaf, leaving almoſt no part of the plant, except the ſtump and fibres. I cauſed the whole field to be three times cloſely rolled, which not only deſtroyed the vermin, but cloſed the ground effectually around the mutilated plants. In a few days thereafter, we had ſome fine rains, when the plants began to ſhow freſh leaves, and puſhed on till they became an excellent crop. I ought to have mentioned, that this field was ſown by way of experiment, and contained both ruta-bagas, and all the varieties of turnips. Each kind ſuffered alike from the worm, and the beneficial effects of the rolling were equally diſcernible upon them all. I think myſelf, therefore, warranted to affirm, that rolling of turnips, when infeſted with the black caterpillar, is the beſt way of reſiſting the attacks of this deſtructive inſect; and I hope, in future, no

perſon will think of ploughing up fields that may be infeſted, till they have made a fair trial of the remedy I have now recommended. I am your's, &c.

Lanarkſhire, Dec. 1804. M.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Account of a Machine, whereby Wheat Land may be harrowed in a wet Seaſon, with a Plate, and Deſcription of its ſeveral Parts. Communicated by Mr Andrew Gray, Millwright.

SIR,

THE introduction of machinery into ſeveral departments of practical agriculture has been attended with the moſt beneficial conſequences, and ſeveral recent improvements in this line, have, in a great meaſure, enabled the agriculturiſt to extend his operations, and execute them with the like facility and regularity, as, for many years, have guided thoſe carried on by the manufacturer. Senſible that it is your earneſt wiſh to diſſeminate every kind of information that may contribute to promote rural improvement, or benefit thoſe concerned in the cultivation of the ground, I take the liberty of tranſmitting you a plan and deſcription of a machine, which may be ſucceſsfully uſed for accompliſhing the ſowing of wheat in the wetteſt weather. Something has already been ſaid on this ſubject, by your correſpendent W. in the ſupplement to vol. iv., and I am extremely happy that the deſign met with the approbation of a gentleman like him, who poſſeſſes eminent agricultural abilities, as is conſiſtent with my perſonal knowledge. The ſowing of wheat, under exiſting circumſtances, is the moſt important branch of the corn farmer's labour. In ſome ſeaſons, according to the old method, it is phyſically impoſſible to get wheat land harrowed, eſpecially what has been reduced by ſummer-fallow, without ſubjecting it to poaching from the horſes, or to a great loſs of ſeed: hence it often happens, that a leſs quantity of wheat is got ſown, than required for the ſupply of the market. But, were the machine, which I am now to deſcribe, to come into general uſe, no ſuch deficiency could be felt, becauſe with it wheat may be ſown in the moſt adverſe ſeaſon, and a regular ſupply furniſhed, adequate to the increaſed and increaſing demand for that article.

I am your's, &c.

A FRIEND TO IMPROVEMENTS.

Explanation of the Plate.

FIG. I.—A A Repreſents the ridge ſuppoſed 15 feet broad.

B B Are three harrows and a half, which cover the breadth of

of this ridge. In each harrow are 20 teeth of iron, and in the half are 10; in all 70, which divides the ridge into 69 equal parts. See V. V. And, when moved along, proceed in lines nearly two inches and five eights diſtant from one another, and parallel to the line of draught.

C C, The furrows on each ſide of the ridge, in which the horſes walk when drawing the machine with the harrows, which prevents them from poaching the land in the proceſs of harrowing.

D D, Iron haſps, with hooks, which connect the harrows, keeping them at the ſame diſtance from one another as the ſpaces between the bulls in the harrow; ſo that, by this means, the teeth are equally divided on the ridge, the openings in the haſps require to be made long in a perpendicular direction to the ſurface of the harrow, ſo that the hooks may move up and down in them, and allow the harrows to riſe or fall according to the inequality of the ground.

E E, Iron bars fixed near the points of the bulls in both ends of each harrow. In theſe bars are different holes, in which the points of the iron rods P R are faſtened by ſcrewed nuts; by this means they may be eaſily ſhifted from one hole to another, when found neceſſary.

F F, A beam, extending the whole breadth of the ridge, made of two pieces joined together by ſliders in the groves X and Y, by which it can be lengthened to anſwer any ridge, from 12 to 18 feet broad. This beam is ſupported at each end by the frames S and T, in which the wheels roll in the furrows, in the horſes' track. See FIG. II. To this beam the harrows are connected by the haſps and chain G G, from each harrow. The haſps are fixed on the ſquare of the beam (ſee W, ſeparate fig.) by plates and ſcrewed nuts on its upper ſide, by which they can be ſhifted at pleaſure, and fixed upon any place of the beam, according to the number of harrows required for the breadth of the ridge. In the chains at U, is a roller, where it joins the harrow, and, when the horſes are turned, runs along the rods P R, and prevents them wearing.

H K, The ſhafts in which the horſes are yoked to draw the machine. When the harrows arrive at the end of the ridge, it would be difficult to turn them to go over the ſame ridge again, although they could eaſily paſs to the next ridge; but in order that the harrows may return on the ſame ridge, and prevent the trouble of turning the whole machine, the ſhafts are made to turn on iron bolts, N and O, in the frame. Theſe bolts go through the ends of the croſs beam F, and the frames S T; ſo, when the horſes with the ſhafts H turn round to the right, into the ſame furrow near I, and the horſes with the ſhafts K turn to the left,

into the furrow near L, they regain their tracts, and move on, drawing the frames S and T, with the beam F, to which the harrows are faſtened by the chains G. The rollers in the ends of theſe chains run along the rods P R, and, without turning the harrows or machine, they return along the ridge as often as is found neceſſary to harrow it ſufficiently. One man in the middle of the ridge may direct the horſes on each ſide, and turn them any way by the bridle reins, as marked at N and O on the frames. The end of the beam F goes into mortiſes in the middle rails of the frames S T, and has liberty to move on the bolts N and O; ſo that if the horſes on one ſide of the ridge ſhould happen to go before thoſe on the other ſide, the wheels carrying the frames follow them without going to a ſide, or rutting the ridge, which would happen, if the ends of the beam were fixed, or had not liberty to play.

FIG. II.—Profile of the Machine and Harrows.

A B, The ſhafts by which the horſes draw the machine with the harrows.

C D, Is the frames that ſupport the ends of the beam, to which the harrows are attached, and in which the wheels E turn, when rolling in the furrows behind the horſes.

F G, The harrows with their teeth, which are equally tapered on both ſides, ſo that the harrows may be drawn from either end.

K, The chain that connects the harrows to the beam F. See Fig I.

H, The iron rods fixed at each end of the harrow, and on which the roller I, in the chain K, runs along, when the horſes and ſhafts turn round, and draw the machine the other way.

L, The iron bolts on which the ſhafts turn, and ends of the beam move.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Query concerning a Machine for hummelling Barley.

SIR,

I ſhould be glad to be informed, through the medium of your very uſeful Magazine, whether any means have yet been fallen on for *completely hummelling* barley (clearing it off the awns), either by machinery attached to a thraſhing mill, or to fanners. I am, Sir,

Your humble ſervant,

A CONSTANT READER.

BRANCH

BRANCH II.

REVIEW OF AGRICULTURAL PUBLICAT

General View of the Agriculture of Cumberland, s tions on the Means of its Improvement, drawn up deration of the Board of Agriculture, by J. G. Culley, 1797. *Printed at Newcaſtle, and* Robinſons, &c. *London.*

THIS article, together with the ſubſequent one, r on our board, having been repeatedly poſtponed t for more temporary matters. Though rather out cannot, however, paſs over a publication which con information; more eſpecially, as the means ther for improvement are judicious and intereſting.

CUMBERLAND, the moſt northern diſtrict on the is of conſiderable extent, containing about 970,000 meaſure, whereof nearly one half is in old encloſ remainder either improveable common, or uncult tain land. The climate, on the whole, is wet, eſp the autumnal months, which, leſs or more, is the the weſtern parts of the iſland. The ſoil is of lities, but the moſt prevalent of the arable is a dry excellently adapted to the culture of turnips, and and feeding of ſheep. One diviſion of the mounta abounds with coal, lime, and lead ore, the other w black lead. The whole is abundantly ſupplied v the fineſt quality; but, notwithſtanding the extent none of its rivers can be ſaid to be navigable, the flowing more than two or three miles up any of th

The ſtate of farming muſt, almoſt in every bi garded as far behind that of the conterminous diſtr umberland. Indeed, both phyſical and artificial c bute to impede the progreſs of improvement. T not only worſe, but the ſurface more rugged, whi divided into ſmaller parcels, the greateſt part bei lords of manors, by that ſpecies of vaſſalage called *nure*. Few leaſes are granted, and thoſe that ar tend only to five, ſeven, or nine years. In a w

bandry of Cumberland is a full century behind, and its preſent ſtate affords deciſive proof, that the tenure, under which land is held, forms a moſt important branch of political regulation.

It may be remarked, that holding by *cuſtomary tenure* is not only pernicious and deſtructive to good huſbandry, but alſo to the intereſt of thoſe concerned; and that to enfranchiſe every perſon ſo ſituated, would be a meaſure founded on wiſdom and political expedience. The fines and heriots exacted entail poverty upon ſuch as poſſeſs under this abſurd tenure, and the various ſervices to which they are liable may be pronounced directly in the teeth of every agricultural improvement. If a law paſſed for emancipating thoſe who hold by this tenure, it might be eaſy to fix upon equitable terms for regulating the value of the right given up by the lord of the manor, in conſequence of ſuch an emancipation. The ſentiments of the intelligent ſurveyors are much in uniſon with thoſe now expreſſed. In page 226, under the head of improvements, they ſay,

'One great obſtacle to improvement ſeems to ariſe from a laudable anxiety, in the cuſtomary tenants, to have their little patrimony deſcend to their children. Theſe ſmall properties, loaded with fines, heriots, and boon-days, joined to the neceſſary expence of bringing up and educating a numerous family, can only be handed down, from father to ſon, by the utmoſt thrift, hard labour, and penurious living; and every little ſaving being hoarded up, for the payment of the *eventful fine*, leaves nothing for the expences of travelling to ſee improved modes of culture, and to gain a knowledge of the management and profits of different breeds of ſtock; and be convinced, by ocular proofs, that their own ſituations are capable of producing ſimilar advantages. And even ſhould they be half inclined to adopt a new practice, prudence whiſpers that, ſhould the experiment fail, it would require the ſavings of many years to make good the deficiency.

'The *cuſtomary tenure* is allowed on all hands to be a great grievance and check to improvement. Would not this be beſt done away on the diviſion of commons, as was the caſe at Brampton, &c. where Lord Carliſle had 1-12th for his conſent as lord of the ſoil, and for enfranchiſing the allotments. There are other lords who aſk 1-4th for their conſent and enfranchiſing. The yearly value of the various cuſtoms, fines, &c. might be eaſily ſettled by commiſſioners; and twenty-five years purchaſe, on this value, be the price of enfranchiſement, which might be allowed out of the allotment, upon the diviſion of a common, or paid in money, at the option of the tenant.

'On theſe terms, neither party would have reaſon to complain; but, where a tenant cannot enfranchiſe under forty years purchaſe, it would be a humane act of the legiſlature to relieve theſe bondagers by law; or laudable in the Board of Agriculture to induce ſuch lords of manors to accept a fair equivalent for theſe dregs of vaſſalage.' P. 226—227.

Leaſes,

s, as already ſaid, are rarely given to tenants. With jority of our readers this circumſtance will concluſively at agriculture is not in a forward ſtate, and that ſmall ment may be expected while the ſecurity afforded by ure is withheld. We have, on various occaſions, ſtated nion as to the neceſſity of granting leaſes before tenants warranted to undertake improvements, and cannot avoid ing, that it is truly lamentable to obſerve how inatten- majority of Engliſh proprietors are to their own inte- ing the improvement of the country out of the queſtion, ey thus attempt to retain the tenantry in a ſtate of de- e, merely that their electioneering influence may be in- ; for no better reaſon can be aſſigned. We are clear re money is annually loſt, by thoſe concerned, in with- leaſes, than would be required to purchaſe every ſeat in ent, even at the higheſt price underſtood to have been

n the chapter on implements we learn that *one* horſe e generally uſed ; a practice undoubtedly beneficial to the and to the public, by preſerving the roads from the ex- lamage ſuſtained where large carts and waggons are em-

In forming road bills, an erroneous idea ſeems to have ed our legiſlators, and induced them to beſtow ſomething remium on thoſe who uſe waggons, though it is evident ch are eminently prejudicial to roads in every ſituation, ticularly in mountainous diſtricts. The opinion of the rs is as follows :

ſuperior goodneſs of the roads in Cumberland may, in a great be attributed to the univerſal uſe of ſingle-horſe carts. Where- gons are uſed, they are the deſtruction of roads, eſpecially in ntries, where they are obliged to lock the wheels ; the banks manner ploughed up with them, and the nine inch wheels are, , no more than three inch wheels, by the artful mode of laying iddle courſe of tyre, which is *raiſed an inch above the reſt ;* of being nearly exempted from tolls, every *horſe* drawing in a ought to pay *treble* to what ſhould be exacted from a *horſe* in a *ſingle-horſe cart.*' P. 236.

advantages ariſing from incloſing commons are ſatisfacto- ailed, p. 186, &c. though it ſtrikes us, that if they were *ided*, much benefit would be gained by thoſe who have an in ſuch lands. The ſtatute law of England, however, has connected both branches of improvement, and, to the our knowledge, there is not an inſtance upon record, iviſion has been made without the burden of incloſure o it. Much of the waſte land is not of ſufficient value

to defray the charge of incloſing, and ſo cannot be divided under the exiſting ſyſtem; but were it of ſufficient value, the proprietors, individually conſidered, are more capable of being intruſted with the work than any body of commiſſioners, however reſpectable. That proprietors would do it more frugally cannot be doubted, and that they would ſeldom make an unprofitable attempt may be equally credited.

Nothing worthy of imitation can be ſelected from the tillage ſyſtem of the diſtrict. We are ſorry to ſay, that huſbandry is rarely executed upon judicious principles, and muſt reprobate the mode in which the arable land is reſtored to graſs as being equally barbarous with what prevails in the moſt worthleſs highland diſtrict. The ground is generally left to ſeed itſelf, and this practice is ſeverely laſhed by the ſurveyors. They ſay,

'On aſking a farmer at Uldale, why they ſowed no clover or graſs ſeeds, he replied, "*we have no occaſion, for the land is naturally girs-proud.*" Thoſe that are experienced in cultivation will readily admit that, after growing from ſix to twelve white crops in ſucceſſion, it can ſcarcely be otherwiſe than *graſs-proud*. There is certainly graſs in abundance, but of ſuch kind as no good farmer would wiſh to be poſſeſſed of. This barbarous ſyſtem is practiſed upon many dry loamy ſoils, which, after being thus left to graſs, cover amazingly faſt with moſs, probably owing to the bad cultivation and exhauſting crops of corn more than to the wetneſs of the climate, to which it is generally attributed.'—P. 189.

The ſection on ſheep huſbandry is intereſting. Two kinds appear to be bred in the county; one called *Herdwick's*, the ewes and wedders of which are polled, that is, without horns, though ſome of the tups are furniſhed by nature with that appendage. This ſeems to be a hardy breed, and tups are much ſought after from among them for improving the ſheep of other mountain diſtricts. The other kind are generally horned, high ſhouldered, and flat ribbed, carrying wool both coarſe and ſtrong. We concur in opinion with Meſſ. Bailey and Culley, that theſe breeds admit of great improvement.

'At Penruddock we obſerved ſome ſingularly rough legged, ill-formed ſheep; on aſking an old farmer, from whence they had that breed, or where they got their tups? He innocently replied, *Lord, Sir! they are ſik as God ſet upon the land, we never change any!* The latter part of this ſimple ſtatement we readily believe; but that *God ſet upon the land* ſuch ill-formed, unprofitable animals, we cannot ſo readily aſſent to; and rather think they have acquired their preſent ill-form, and bad properties, by the indolence and ignorance of the owners. We wiſh we could avoid adding, that the ſame practice which guides the men of Penruddock is too prevalent in every part of the country.'—P. 214.

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The concluding chapter upon the *means* of *improvement* contains much ſound practical advice, which we hope will not be loſt upon the Cumberland farmers. Our limits will not, however, allow us to go farther than to add, that the ſame liberal and enlightened principles appear to have governed the reſpectable ſurveyors, as we formerly had occaſion to notice in their account of Northumberland. A thorough knowledge of rural affairs is conſtantly diſplayed, and the whole is preſented in perſpicuous language, which, at the ſame time, may be characterized as ſmart and appropriate.

N.

General View of the Agriculture of Weſtmoreland, with Obſervations on the Means of its Improvement, drawn up for the Conſideration of the Board of Agriculture by Mr A. Pringle *of Ballancrief. Printed at Newcaſtle,* 1797. *Sold by* Meſſ. Robinſons, &c. *London.*

The author of this report, Mr Andrew Pringle, a ſhrewd intelligent farmer, here lays before the public a conciſe, and, we truſt, a correct account of the huſbandry of Weſtmoreland. Mr P. is one of the *Scottiſh farmers* who were called by the Board of Agriculture to inſpect the rural matters of our ſouthern neighbours; but poſſeſſing a greater ſtock of prudence than his brethren ſent upon the Yorkſhire miſſion, the reſult of his labours has of courſe been more favourably received. Generally ſpeaking, he appears to have contented himſelf with deſcribing things as they were, without entering upon the hazardous talk of ſhowing how they might be amended. Where an abuſe came in his way, he handles it with delicacy, and thereby has eſcaped that torrent of abuſe which, both from above and below ſtairs, was thrown upon his friends who viſited Yorkſhire.

The introduction to the report is a flowery performance, but excellently calculated to make the Board think well not only of themſelves, but alſo of the cauſe in which they were engaged. Some preliminary obſervations by the worthy biſhop of Landaff follow, which we are diſpoſed to regard as conveying an over ſanguine view of the benefits that may be gained from planting timber trees. Though ready to admit that conſiderable improvements may be made on the waſte lands of Weſtmoreland by raiſing plantations adapted to the ſoil and climate; nay more, that many of them are ſuſceptible of improvement in no other

other way; yet, as the value of ſuch improvements can in no caſe be aſcertained beforehand, and, in fact, is regulated entirely by the degree of attention beſtowed in planting, fencing, and training up the young trees, we are led to view every previous calculation with a ſceptical eye. Unleſs the different operations are carefully executed, no plantation, however favourable phyſical circumſtances may be, can ultimately be completely ſucceſsful.

We ſhall now look at the report.—Weſtmoreland is an inland diſtrict, containing about 540,000 ſtatute acres, and 35,000 inhabitants. The ſurface, in general, is hilly and mountainous, conſequently not well calculated for tillage. Few minerals are to be found in its bounds except limeſtone. Several extenſive and beautiful lakes are formed betwixt the mountains, which afford much pleaſure to travellers who viſit them from all quarters of the iſland.

The ſtate of property is nearly ſimilar to what we have already mentioned in our account of the conterminous county of Cumberland; therefore it is unneceſſary to repeat the obſervations which occurred upon reading this part of the report. The houſes of the farmers are deſcribed as inconvenient, being ſituated in little ſtraggling villages; and, as for cottages, very few are to be found within the precincts of the county. Farms are ſmall, few exceeding L. 100 of yearly rent; but it muſt be remarked, that the yeomanry, here called *ſtateſmen*, who farm their own lands, "live poorly, and labour hard; and ſome of them, particularly in the vicinity of Kendal, in the intervals of labour from agricultural avocations, buſy themſelves in weaving ſtuffs for the manufacturers of that town."

Huſbandry may, in ſome degree, be eſtimated from what is given in the following paſſage. The obſervations which follow are ingenious and juſt.

'It is painful to one, who has in his compoſition the ſmalleſt ſpark of knight errantry, to behold the beautiful ſervant maids of this country toiling in the ſevere labours of the field. They drive the harrows, or the ploughs, when they are drawn by three or four horſes; nay, it is not uncommon to ſee, ſweating at the dung-cart, a girl, whoſe elegant features, and delicate nicely proportioned limbs, ſeemingly but ill accord with ſuch rough employment.

'A judgment of the refinement and civilization of a people has been often formed from their treatment of the fair ſex. and in this reſpect France was formerly held up to the world as a model Unfortunately the manners of nations are too often painted by thoſe who have been converſant only with perſons in what may be called high life; but were it allowable to apply this rule even to France, and to look for ſpecimens into the lower orders of ſociety (and it is there ſurely that the moſt faithful repreſentatives of national character or manners are to

to be met with), it would be found that the women, even in the boaſted days of her monarchy, were doomed to the ſevereſt labour, to load the dung-cart, to ſaw the wood, and to threſh the corn.'—P. 265—266.

In the chapter devoted to the management of arable land we obſerve, that when graſs land is *overgrown with moſs*, it is broken up with the plough in the beginning of March, and ſown about the firſt of April with oats. Barley is taken as the ſecond crop, to which two or three ploughings are given according to the ſtate of the weather, and *eighty or one hundred* cart loads of ſtable dung are laid on the cuſtomary acre of 6760 ſquare yards, which certainly is a moſt extraordinary dreſſing. The third crop is oats, and the land ſeems to be then left to *ſeed* itſelf. This appears to be the general practice, though exceptions are given, which, we truſt, for the credit and intereſt of the diſtrict, are yearly on the increaſe.

The chapter on graſs throws additional light on the rural ſyſtem of the diſtrict. The author, p. 274, ſays,

'Every occupier of land, whether *ſtateſman* or *farmer*, having it in his power to keep any number of cattle, through the months of ſummer, upon *joiſted* fields, where they may be kept at a cheap rate, or upon commons, where they may be kept almoſt for nothing, it is a principal object with him to provide for them plenty of winter food. Hence his attention is chiefly directed to his crop of hay. It has been already ſtated, that the quantity of land, at preſent under culture, does not exceed one-fourth part of the whole county, or 135,000 acres. Had all the arable land in the county been cropped with corn three years out of twelve, there would have been preciſely one-fourth part of the whole in tillage: but there are many paſtures of an inferior ſort, which are very ſeldom ploughed, and in the high parts there is a much ſmaller proportion of the land in corn than there is in the low parts. In the very extenſive manor of Ravenſtonedale, although there are between 2000 and 3000 acres incloſed, there are not ſixty acres of corn; and it is probable that there are not in the county more than 20,000 acres under crops of corn in one year. The remaining 115,000 acres are cut for hay, or depaſtured with fattening beaſts and riſing ſtock, or with cows applied to the purpoſes of the dairy. From ſuch an inſpection of the county as was had with a view to the framing of this report, the proportions uſed for theſe different purpoſes cannot be even gueſſed at, but that for hay is perhaps the moſt conſiderable. A prejudice againſt the artificial graſſes prevails ſo generally over all the county, that it may be almoſt literally ſaid they are never ſown. When the land has produced a few crops of corn, and it is judged that the moſs is quite deſtroyed, it is left to itſelf; and ſuch is the humidity of the climate, and ſo ſtrong is the vegetation of weeds and natural graſſes, that the very firſt crop has, by actual experiment, been found to produce 120 ſtones of hay per acre, weighed from the field. As every perſon who expects to have occaſion for hay hires a field to ſupply him with

with that commodity, it is not often that hay is ſold in large quantities; and it is ſtill ſeldomer that the quantity raiſed upon an acre is exactly aſcertained. When ſold, it may bring from 4d. to 6d. a ſtone in winter and ſpring, or from 4s. to 5s. a cubic yard. A cubic yard, in the lower part of a well-preſſed mow, may contain twelve ſtones of hay, and has been known to ſell as high as 7s. or 8s. In the ſouthern and in the eaſtern parts of the county, much attention is paid to the making of compoſt dunghills, which, with the dung that remains after manuring for the barley crop, are always laid upon the hay grounds, and are thought conſiderably to retard the progreſs of the moſs. At Kendal and other places, where dung can be purchaſed, they are manured after the firſt crop, and every third year while they continue in graſs.'—P. 274—275.

A conſiderable extent of land remains in a waſte or natural ſtate, which is chiefly depaſtured with flocks of ſheep. In winter the ſheep are brought down to the low encloſed fields, except the wedders, which are left to ſhift upon the hills. After dropping their lambs, the ewes are ſent back to the waſtes, where the whole flock paſtures indiſcriminately without an attendant. Great numbers of Scots ſheep are annually purchaſed at Stag-ſhawbank fair, and grazed on the waſtes; and, in addition to the ſheep, numerous herds of black cattle are depaſtured on the commons. The value of the paſturage appears to be trifling, though perhaps, like other articles, it may have increaſed ſince our author viſited Weſtmoreland.

'It is generally underſtood that no perſon ſhall ſend to graze on any common more ſtock than he can winter upon his eſtate or farm, in right of which he has a title to paſturage on that common. This regulation, however, is little attended to, and the commons are almoſt always overſtocked to ſuch a degree, that many perſons do not think it worth while to avail themſelves of their right of commonage.

'On ſtinted paſtures, it is very ordinary to hire out the right of keeping both cattle and ſheep. A ſummer's graſs for an ox or for ten ſheep, on Forreſt Hall and Moſley common, is let at 4s.; on a part of Troutbeck common, where no ſheep are allowed to feed, an ox may be kept for 3s. 6d. and, on another part of the ſame common, *an ox or ten ſheep may remain all the year for ſixpence.*'—P. 280.

Some uſeful hints are given under the head of *means of improvement.* The ſowing of artificial graſſes is ſtrenuouſly recommended, and certainly with great propriety, provided the ground is ſuitably prepared beforehand for their reception. Turnips are alſo conſidered as a root well calculated for the climate and ſoil of the Weſtmoreland vallies, and the benefit of introducing more approved rotations of cropping is elucidated. With regard to the waſtes and commons, the author, like every other

other perſon who has ſtudied the ſubject, declares, that the interpoſition of the Legiſlature is loudly called for, ſo as they may be rendered of greater value to the ſtate; for, at preſent, he thinks they are of little or no uſe, either to thoſe having right of commonage, or to the nation at large.

On the whole, the Survey of Weſtmoreland is a reſpectable performance, and may be highly beneficial to the huſbandmen of that diſtrict. It is well written, and affords full proof that the author poſſeſſes literary talents of a ſuperior kind. If he has not, in every caſe, probed abuſes to the bottom, or pointed out how ſuch might be removed, he has certainly ſhown that any deficiency of this kind did not proceed from want of ability to aſcertain abuſes, or to ſelect the beſt and moſt appropriate remedies by which they might be rectified or removed.

N.

Obſervations on the Formation and Management of uſeful and ornamental Plantations; on the Theory and Practice of Landſcape Gardening; and on gaining and embanking Land from Rivers or the Sea. Illuſtrated with Plates. By J. Loudon, 342 *pages. Edinburgh,* Conſtable *and* Co. *London,* Longman, &c.

RURAL economy may be claſſed under two different heads: 1. What relates to the culture of the ground, and the management of domeſtic animals. 2. What belongs to the ornament or decoration of the earth. The firſt claſs undoubtedly deſerves our particular attention at all times, being cloſely connected with the continuance of our exiſtence. The ſecond merits only a ſecondary conſideration, not being abſolutely neceſſary to the welfare and proſperity of mankind.

The ſubjects treated of in this volume are, in ſeveral reſpects, allied to the ſecond branch of rural economy; for they can ſcarcely be attended to, if the practice of agriculture has not been previouſly much improved, and a ſuperabundance of capital provided for executing ornamental and decorative works. The raiſing of fences, the planting of timber trees, and the embankment of our ſhores, are, however, ſo neceſſary, and, in many caſes, ſo profitable undertakings, that we cannot avoid noticing what is ſtated on theſe important topics.

Mr Loudon, in the firſt chapter, treats "*on the formation and management of uſeful and ornamental plantations.*" In the ſecond, "*on the theory and practice of landſcape gardening.*" In th

the third, "*on a new mode of gaining and embanking land fr rivers or the ſea.*" The firſt and laſt ſhall occupy a little of o attention. Indeed, the novel way and manner in which theſe d ferent ſubjects are diſcuſſed, ſeem to call for the ſerious conſide tion of all perſons who have ſuch undertakings in view.

After detailing, in a very ſenſible and judicious introductio the advantages which ariſe from plantations in this country, a ſtating, 'that wood is the greateſt ornament of our globe, and t moſt eſſential requiſite for the accommodation of civilized ſociet Mr Loudon proceeds to ſhow what are the objects of planti which he reduces to three heads; namely ornament, profit, a ſhelter, which certainly may be conſidered as a correct claſſifi tion. Paſſing over what is urged under the firſt head, as rat foreign to our deſign, we ſhall extract, from p. 33. *et ſeq.* w as ſaid concerning the other two objects, remarking only h that the author ſeems fully maſter of his ſubject.

'Where *profit* or *value* is the prime object in view, there will ne ſarily be a particular product to be grown, from which it is to derived. This product may conſiſt of all, or any of the different p of a tree, as the roots, trunk, branches, bark, &c. or of the eſſenc any of theſe parts, as the ſap, reſin, gums, tar, pitch, &c. Timber bark, however, are the products moſt commonly raiſed; and theſe their properties vary infinitely in different degrees. The timber ſome is brittle, of others tough, of others hard, and of others ſoft and the bark is of different degrees of aſtringency, ſweetneſs, or acrid Theſe qualities and parts of trees are all ſuited for different purpoſe the arts; and thoſe of them which it is moſt deſirable to raiſe n depend entirely upon the probable conſumption, the ſoil, ſituation, other circumſtances. Wherever profit is the principal conſiderati the products moſt in demand ſhould be known, and the trees moſt p ductive of theſe, in the given ſoil and ſituation, muſt alone be plant This may point out the neceſſity of attending to the natural ſoils ſituations of trees and ſhrubs, the qualities of their products, their u in the arts, and their relative value.

'Where *ſhelter* or *ſhade* is the principal conſideration, the qualitie each require to be inveſtigated, and thoſe forms uſed which are l adapted for that purpoſe.

'The object of ſhelter is to produce heat; to protect cattle paſture from the inclemency of the weather. Hence, the trees u for this purpoſe ſhould be clothed with branches and foliage from ground upwards. The foliage ſhould be perpetual, and, if poſſibl non-conductor of heat, ſuch as that of the reſinous tribe of evergre This may be thought too nice a diſtinction; but any perſon would ſenſible of the difference, if, in a windy day, he were to ſtand alterna under the ſhelter of a *holly* and a *ſpruce* of equal thickneſs.

'The object of ſhade is to produce cold, that men or cattle n enjoy the cool refreſhing breeze during the mid-day ſun. For

purp

purpoſe, it is eſſentially neceſſary that the ſtems of the trees be free from branches to a conſiderable height, in order to promote the free circulation of the air. It is true, moſt trees may be trained in this form, but the operation would hurt ſome kinds, while others again are greatly improved by pruning. The ſhade of ſome trees is pernicious, and ſhould be guarded againſt; others are ſo thin of boughs and leaves that the rays of the ſun will pierce through between them; and theſe alſo muſt be rejected. This may ſhow the neceſſity of attending to the nature and kinds of trees that are planted for either of theſe purpoſes.' P. 33—36.

The ſecond ſection preſents an account of the *characteriſtical diſtinctions and particular properties of trees and ſhrubs*, arranged under twenty-two ſeparate heads. Each of theſe are diſcuſſed in ſuch a clear and diſtinct manner, as cannot fail to yield ſatisfaction to ſylvian amateurs. Upon the value of timber trees, the author ſays:—

'The *relative value* of timber depends almoſt entirely upon local circumſtances.

'Oak and elm, proper for ſhip-building, growing in the neighbourhood of a dry-dock, will be more valuable than if it were a hundred miles up the country.

'Undergrowth of dog-wood, ſallow, and alder, in the neighbourhood of a gunpowder manufactory, is of great value; but, at a diſtance, it can be uſed only as fuel, &c.

'There are, however, ſome kinds of wood that, from their univerſal application, are valuable every where, ſuch as the *oak*, the *elm*, the *aſh*, the *beech*, and to which may be added, as the moſt valuable, the *larch*.

'There are other kinds which, from their ſcarcity, are valuable every where, as the *box*, the *holly*, and the *yew*. The lighter products, ſuch as *birdlime*, *potaſh*, *turpentine*, *pitch*, &c. may be reckoned equally valuable every where.

'The tree that will be moſt valuable in a given ſituation may not grow in a given ſoil. In this caſe, the tree that will come to the greateſt perfection in that ſoil will generally be found the moſt valuable.

'A wood, not valuable from local circumſtances, may, by manufacturing it on the ſpot, in order to render carriage leſs expenſive, or by ſome ſuch method, be rendered much more valuable.

'From the general introduction of good roads and canals, and the ſpirit for increaſing theſe, there can hardly be a ſituation in which plantations will not be valuable for timber; and it is impoſſible to conceive one where the other products will not be of great value.'—P. 56—58.

Section third is *on the arrangement of trees and ſhrubs*. Section fourth *on the diſpoſition of wood*, ſo as the greateſt poſſible advantage may be derived from particular ſituations. Here Mr Loudon ſtates, (p. 83.) that—

'Taking the country in a general point of view, the hills ſhould be wooded;

wooded; the riſing grounds betwixt the hills and the vallies diverſified with gentlemen's ſeats, paſture lands, and ſome corn fields; and the vallies themſelves kept in a ſtate of almoſt perpetual aration.

'Moſt of theſe vallies, to prevent the ſtagnation of the air, and to ſuit the particular mode of farming for which they are adapted, ſhould be free from plantations, and ſometimes even from hedges. They ſhould preſent, in autumn, broad flat ſhades of rich yellows, interſperſed with farm-ſteadings, and relieved by roads, canals, and rivers, ſuch as the Carſe of Gowrie and Strathearn appear from the ſurrounding mountains.

'Upon the riſing grounds and the ſides of hills, the caſtles, manſions, towns, and villages, with every variety of paſture and wood, interſperſed with ſtreaks of corn fields, would form a contraſt with this fore ground; and the mountains, almoſt wholly clothed with wood, would form a grand back ground to this rich and noble ſcene.

'There is nothing of ſo great importance as the ſituation of wood, whether we look to the general appearance of a country, and the improvement of its climate, or to the beauty and value of individual eſtates. All other operations that can be made about a place are, comparatively, of little importance. It is the wood, like the ſhades in a picture, that gives the effect; and as it is by the ſituation and relative connexion of theſe ſhades, that an expreſſive or unmeaning picture is produced by the painter; ſo, by the ſite and connexion of plantations, a place is either deformed or beautified by the planter. Even ſmall groups and detached trees, like the laſt touches in a picture, are of the utmoſt conſequence; and every painter knows, that, when theſe are laid on by an unſkilful hand, they never fail to ſpoil the whole piece.

'It is lamentable to ſee the plantations which are daily making at a conſiderable expence, without any regard to this principle. In the dull levels of England, it may be thought of leſs conſequence; but, in Scotland and Wales, where the grounds are beautifully varied by nature, it is of the utmoſt importance. In leſs than half a century, wood will completely change the appearance of a gentleman's place, and of the whole country; and thoſe who underſtand the ſubject will allow, that there is a great danger of the change being made for the worſe. Scotland, at preſent, is a pleaſant country, as expreſſive of a peculiar character. If that character is partially changed, the effect will be diſguſting; but change it completely, and the expreſſion will be infinitely ſuperior to its preſent ſtate, and much more rich and noble than England, or almoſt any other country.

'That range of mountains called Pentland Hills, in the neighbourhood of Edinburgh, are well known. Now, ſuppoſe all the country around them wooded, (that is, the trees about gentlemen's places, and the hedgerow timber grown up), while the hills are left naked and bare, in place of being a grand feature in the country, they will be a ſtriking deformity. But ſuppoſe them properly varied with wood, their paſture, climate, and appearance, will be greatly improved; they will be at once the nobleſt ornaments to the country, and of ten times their preſent value to the proprietors. P. 83—86.

Th

The fifth ſection is concerning '*the outline of plantations*,' wherein the author declares war againſt ſerpentine lines. The ſixth treats '*of the different kinds of plantations*,' and contains much uſeful information on the advantage of raiſing oak undergrowth in woods. We do not mean to follow out the calculations made reſpecting the profit gained in ſuch caſes, though we are inclined to believe that our author preſents us with exaggerated eſtimates. It is a difficult buſineſs to ſpeak with preciſion concerning profits, realized only at a diſtant day, and which, thoſe who plant, ſeldom live to reap; and it deſerves attention, that the riſk of a total failure is never taken into account by thoſe who ſpeculate upon the advantages of planting woodlands.

Section ſeventh is '*on ſheltering young plantations*;' a ſubject, we confeſs, little attended to, though the neceſſity of it ought never to be forgotten by thoſe who embark in ſuch undertakings. The eighth ſection is ſo much to our mind, that we cannot refrain from extracting the whole of it.

'Notwithſtanding all that has been written upon this ſubject, and the many facts brought forward to prove the propriety and ultimate economy of preparing the ſoil previouſly to planting; the operations of moſt gentlemen ſhew that they are doubtful of the ſubject, or ignorant of its importance. It is needleſs, however, to add any thing to what has already been ſaid; for it is unreaſonable even to ſuppoſe that a ſquare yard of earth, matted and conſolidated with the roots of heath or graſs, can be penetrated by the delicate fibres of a young plant juſt brought from the nurſery; and ſtill more abſurd to imagine that it can find ſufficient nouriſhment in the compaſs of the pit in which it has been planted. Thus, in plantations made by pitting and planting, whatever be the nature of the ſoil, it will frequently be found, that to ſupply the deficiencies by death that occur for two or three years after planting, will require a ſum equal to that which would have prepared the ſoil; while thoſe that ſurvive are ſo choked with graſſes or heath, and become ſo coated with moſs as to make no progreſs. The pine and fir tribe, it is true, are leſs liable to this than others, as they ſoon cover the ſurface, and deſtroy all vegetation; but I apprehend that the deciduous kinds are more checked by it than moſt people imagine.

'But where the ſoil is prepared, the plants ruſh up to trees with vigour and alacrity, and ſoon begin to yield returns to the owner. Nor is the additional expence of preparing the ſoil conſiderable; in many caſes, it will be more than repaid by the green crops, as potatoes, turnips, &c. which may be raiſed on it for two or three years after planting; and where no green crop can be raiſed, the ſaving in plants and planting, (as few or none require to be replaced), will entirely, or nearly, defray the expence of preparation.

'Thus, independently of timber produce, it appears that the additional expence of preparing the ſoil will generally be repaid the ſecond

or third year after planting: if not poſitively by vegetable produce, at leaſt negatively by preventing further expences. But if we conſider the returns in timber produce, it may appear aſtoniſhing that any ſhould be ſo blind to their own intereſt as to neglect the preparation of the ſoil. If we ſuppoſe that trees grow only twice as faſt where the ſoil is prepared, as where it is not, then a plantation worth 100l. in fifty years, had the ſoil been prepared, would have been worth 200l. in the ſame time, or worth 100l. in twenty-five years. But every one will allow that all kinds of deciduous trees will grow four or ſix times, and often ten times, faſter in prepared, than in unprepared ground; and, of courſe, the return of profits will be correſpondent.

'The ground being drained and cleared, as far as neceſſary, of ſurface incumbrances, the mode of preparing the ſoil will vary according to circumſtances.

'Where a conſiderable extent is to be planted, the ground ſhould, if poſſible, be prepared by the plough; by autumn or ſummer fallowing; or, in very rough moors, &c. by fallowing two ſeaſons; and trench-ploughing ſhould be added to the fallowing wherever it can be accompliſhed. This mode decompoſes the organic matter, and pulverizes the ſoil much more completely than trenching with the ſpade, while it will not coſt above one third the expence.

'In places inacceſſible to the plough, the ground ſhould be prepared with the ſpade, either by digging or trenching.

'In ſteep banks, or places much covered with ſtones, or other impediments to digging or trenching, or where there may be danger of the winter rains carrying away looſe ſoil, pits ſhould be made the ſummer previous to the planting ſeaſon.—One pit being opened, the earth of the next ſhould be thrown into it, with the ſurface undermoſt. By the time the pit is re-opened, the ſward will be rotted, and ſhould be incorporated with the reſt of the ſoil in putting in the plant.

'Other places ſtill more difficult may be planted by ſlits; or by putting in acorns, aſh keys, or other tree ſeeds; many of which will grow in crevices of rocks and precipices, where little or no earth can be ſeen.' p. 113—119.

The ninth ſection treats '*of the ſize of plants and mode of planting or ſowing.*' In extenſive plantations, Mr L. recommends planting in rows, ſo as a horſe-hoe may be introduced; but, in thoſe of an ordinary ſize, his opinion is, that the plants ſhould be put in irregularly, or, as he emphatically expreſſes himſelf, '*irregularly irregular.*' He is alſo ſtrongly in favour of planting acorns where oak trees are to be raiſed, and gives good reaſons in ſupport of this recommendation.

What is ſtated in the tenth ſection, deſerves the attention of every perſon who wiſhes to poſſeſs a thriving plantation. Unleſs the ſoil is properly cultivated during the minority of the plants; unleſs it is ploughed or digged annually, and moved often with hand-hoes till the trees cover the ſurface, it is not to be expected

that

that success can follow any plantation, however favourably circumstanced in other respects. That these operations are too much neglected, we confess; and this we consider as the chief cause why so many plantations do not succeed. We have observed premiums and medals conferred upon those who planted the greatest number of trees, but cannot recollect of a single reward having ever been offered to induce people to take care of them afterwards; though it does not signify any thing to plant trees, if they are not properly trained up and protected.

Section eleventh is '*on the pruning of trees*,' which the author, under certain circumstances, recommends, because it occasions more timber to be thrown into the trunk. Resinous trees, however, he thinks, should not be pruned till they show marks of decay. Thinning trees, he considers as an operation of more importance than pruning, and supports his opinion in the twelfth section by some strong arguments.

The thirteenth section is '*on enclosing, and of different kinds of fences.*' To make a plantation of trees, and neglect to enclose it sufficiently, is a most preposterous measure; and yet, how often may such neglect be justly charged against the owners of woodland! The author gives a distinct account of the different kinds of fences that may be used for protecting young plantations, suited to particular situations and circumstances. What he says on live fences is very much to the purpose.

'*Live fences* include all kinds of hedges, many excellent ways of rearing which are well known.

'Thorn is the best plant where the soil is good; crab the next best. Beech, horn-beam, berberry, &c. where the soil is too dry or thin for the thorn. Elder, birch, poplar, alder, &c. where it is too moist for any of the above.

'Before a hedge is planted, the ground should be well cleaned and pulverized. A strip six or eight feet broad may be fallowed and trench-ploughed the preceding summer. Where the soil is naturally good and deep, the thorns may be planted along the centre of the strip; or, if it is thin and too moist, it may be planted on double earth, which is accomplished by forming a ditch of depth and width according to the water it is to contain, or the cattle it is to defend from the hedge. Every hedge should be well cleaned and defended from cattle for five or six years after it is planted; and in the mean time, its sides should be trained in a tapering form with the hedge-knife.

'The great art of preserving hedges fencible, after they are raised, consists in keeping them three or four times broader at the bottom than at the top. By this means, every part has the full advantage of the sun, air, and rain: it grows equally thick throughout, and particularly below, where it is most necessary. But when a hedge is trained broader

at top, or even perpendicular, that half of it next the ſurface is under the drip of the reſt; and, deprived of ſun and rain, it ſickens; produces few or no young ſhoots; the ſap runs all to the top of the hedge; it gets quite bare below; and ſoon becomes unfit for a fence. Every accurate obſerver will allow that this is the caſe, more or leſs, in the greater part of what are generally conſidered as the beſt kept hedges, ſuch as thoſe ſurrounding market gardens in the neighbourhood of towns, which, though they are annually cleaned and ſhorn with great care, are commonly ſo naked below, as to admit hares, dogs, ſwine, &c.

'In pruning a hedge, the bill or knife ſhould be uſed as preferable to the ſhears. They bruiſe off, rather than cut over, the twigs; and hence, every ſhorn hedge throws out a great number of ſmall ſhoots from the ſurface only, which in time forms a kind of coating or network all over the hedge, encloſing the naked ſtems within, and excluding them from the air. But the knife cuts off the twigs clean and ſmooth. By this means, they throw out fewer ſhoots, but thoſe are of greater ſtrength; and the hedge is equally thick in every part, without being crowded. This excellent mode of pruning hedges is practiſed in ſome of the ſouthern counties of Scotland, where they are productive of many other advantages.' p. 142—145.

Where ſtone walls are uſed to fence plantations, we obſerve the following excellent hints given with regard to the mixing of lime and ſand for mortar. Maſons, in theſe days, perform this important operation very ſlovenly.

'When lime is employed, if, in place of ſlacking it, and letting it lye to mellow or four for ſome weeks, no more were ſlacked and made ready for uſe than what was worked up the ſame day;—if the ſand were clean and rough, and well incorporated with the lime, and were the coping put carefully on; theſe walls would laſt an inconceivable length of time. Lime uſed in this way binds immediately; and, the longer it ſtands, becomes the harder. Hence the ſurface of the wall would acquire a coating of moſſes which would add greatly to its beauty, and prevent decay.

'The ancients uſed lime in this way; and their buildings, both walls and houſes, though under every diſadvantage, remain as monuments of their ſuperior knowledge in this particular. But the moderns in general deſtroy their mortar before they uſe it: it is ſaturated with fixt air, or, in common language, has *loſt band* before it is put in the walls: hence the weakneſs, frailty, and ſpeedy decay of modern buildings, thoſe of rubble work in particular.

'There are few who will form a proper idea of the importance of this hint. I ſhall only aſk, Whether it is moſt deſirable to build walls that will ſtand for centuries with little or no repair, or to build them in the common way, when, if they ſtand half that time, they have to be *pointed* every eight or ten years; both modes coſting the ſame original expence?' p. 146. 147.

Section fourteenth is concerning *hedge-row* timber. However ornamental

ornamental it may be to a country to have trees planted in hedge-rows, we are in duty bound to declare that the practice is injurious to agriculture, and ought not to be imitated. 'Any profit that can be gained from the beſt timber trees, will not compenſate the loſs ſuſtained upon a corn field, eſpecially in a wet ſeaſon, when trees are in its neighbourhood. In every ſeaſon, the loſs is great: the roots being firſt in hand, extract the precious moiſture which ought to go to the ſupport of the tender corn plant. Experience has ſhown us, that where trees are planted in hedge-rows, not leſs than twenty feet of ground, on each ſide, is ſacrificed, independent of the loſs ſuſtained upon the remainder of the field, from the want of ſunſhine and air, eſpecially when a wet autumn happens. Utility ought, in no caſe, to be renounced for ornament. Indeed, it is impoſſible that any practice can in reality be ornamental, which has a miſchievous tendency.

In the fifteenth ſection, many good things may be found *concerning the management of neglected plantations;* and the author's opinion of the preſent ſyſtem is ſuch as to induce him to declare that there are few plantations in the iſland but what will come under this deſcription. With ſome reſtrictions, we have no heſitation in adopting this opinion; becauſe the greateſt number of thoſe who planted trees, ſeem to have loſt ſight of all care for their future management. The woods at Tynningham in Eaſt-Lothian, appear to have been ſyſtematically managed; therefore, a degree of ſucceſs accompanied them, proportional to the judgement and vigour which it appears animated the noble perſonage who directed the buſineſs. To bring a neglected plantation into good order, will require more trouble and expence than would have been neceſſary, in the firſt inſtance; and, after all, the amendments are but partial and precarious.

Section ſixteenth is '*on the felling of wood,*' and the next and laſt one '*on the particular uſes and products of trees.*' In theſe ſections we obſerve much valuable information, though it would lead us too far, were we to examine them minutely.

The ſecond chapter, '*on the Theory and Practice of Landſcape Gardening,*' being very diſtantly connected with the deſign of our work, ſhall be paſſed over without examination. In general, however, it may be obſerved, that the author is a keen diſciple of the celebrated UVEDALE PRICE, and, of courſe, hoſtile to the ſyſtems of Kent and Brown. He contends that nature ſhould be followed on all occaſions, 'making every ſprightly work of art ſerve for her embelliſhment.'

Leaving thoſe themes for reviewers of a different deſcription,

we come to the laſt chapter, which contains 'obſervations *on a New Mode of Gaining and Embanking Land from Rivers and the Sea*,' which undiſputedly is a buſineſs of much importance. Next to cultivating land well, already in our poſſeſſion, the acquiſition of more, by the erection of embankments, muſt be regarded as an object meriting the moſt ſedulous attention.

The embanking of our ſhores, or the art of gaining land from the ſea, has been ſeldom practiſed, and is ſtill leſs underſtood in Great Britain. Various reaſons may be aſſigned why the practice has hitherto been neglected, which, it is to be preſumed, will at a future period ceaſe to operate. Till within theſe few years paſt, the extent of cultivated land was ſufficient to raiſe proviſions for the uſe of the inhabitants; hence, to acquire more from the ſea, ſeemed an unprofitable object to individuals, and not called for on account of any advantage which might be derived therefrom by the public. Theſe obſervations are ſupported by the amazing quantity of waſte ground to be found in every inland county, even at the very gates of the metropolis, ſome of which is naturally calculated to produce the fineſt crops of corn and graſs, provided the legal fetters, under which it is bound, were broke aſunder, and opportunity given to the owners for improving it in a ſufficient manner. As ſuch ground can be brought under cultivation at infinitely leſs riſk and expence than muſt be incurred where acquiſitions are made from the ſea, we are not to wonder that the laſt mentioned improvement proceeds with ſlow ſteps, when the other remains incompleted. In fact, the expences of embanking are great; whilſt, after all, the ſlighteſt error in the plan, or defect in the execution, may render the whole abortive.

Under theſe circumſtances, it cannot excite ſurpriſe, that few attempts have hitherto been made, in Britain, to execute this branch of improvement; and we are almoſt perſuaded that, in our day, the progreſs made therein will be comparatively ſmall. Still this does not deduct from the merit of thoſe who have ſtudied the ſubject, becauſe their plans may be carried into action at a future period, when perhaps an acquiſition of ground may be imperiouſly called for to meet the public neceſſities. That, in numerous inſtances, embankments might be made with ſucceſs and profit, we readily acknowledge, though we are not diſpoſed to believe that, in the preſent ſtate of Britain, many people will be found ready and willing to embark in ſuch undertakings.

But having made thoſe general remarks, which we were in duty bound to offer, we proceed with pleaſure to examine the information communicated by Mr Loudon.

In

In the firſt ſection of this chapter, Mr Loudon treats of the cauſes of the failure of embankments, which he reduces to two, namely, a defect in the form, and imperfectneſs of materials that may have been uſed. With reſpect to form, he ſays that embankments are generally too narrow at the baſe in proportion to their height; hence, they are unable to withſtand the weight of the ſea in high tides. With reſpect to materials, he ſeems to think it of little conſequence what the body of the embankment is conſtructed with, providing thoſe on the ſurface are of a proper kind. Where the ſlope next the ſea is not great, he gives it as his opinion, that no material will do for the ſurface, that is not equal in effect to a cloſe-joined pavement; and, even when the ſlope is conſiderable, that cauſewaying is inferior to a good coat of gravel.

Section ſecond, (erroneouſly printed as the *firſt*) is '*on the moſt ſecure Natural Shores and Banks of Rivers, and cauſes of their Security*' Here the author judiciouſly remarks, that the ſhores leaſt liable to be damaged, are thoſe which have a gentle eaſy ſlope from the bed of the ſea or river to the top of the ſhores, or ſuch as are compoſed of ſolid perpendicular rock. To imitate theſe natural embankments, is therefore the true way of rendering artificial ones effective.

In ſection third, p. 316, the following uſeful admonition is given:

'Whatever kind of embankment is conſtructed, proper ſluices and and tunnels, with valves next the ſea, ſhould be placed here and there according to circumſtances, to allow the water collected within to paſs off, and to admit the ſea at pleaſure, either for the ſake of depoſiting ſand or mud to raiſe the ſurface of the land gained, or to flood the ſoil, in order to produce ſalt, merſe, &c. &c.

The next ſection is '*on the materials with which embankments are conſtructed.*' Mr Loudon here deſcribes a good built wall, properly cemented with well prepared mortar, as the beſt defence where the ſhore is abrupt, and that ſloped embankments may be made of common earth, clay, mud, ſtones, or a mixture of theſe, which will in a ſhort time form a ſolid maſs. Here he judiciouſly recommends that the materials uſed ſhall be conformable to the different angles which the ſurface of the embankment is meant to form. The fifth ſection is on the '*beſt way of preſerving embankments while they are conſtructing,*' which has always been conſidered as the moſt difficult part of the proceſs. Here we think the author treats his ſubject ſuperficially.

Section ſixth is '*on the expence of embankments,*' which to be ſure is an abſtruſe ſubject, and on which little ſatisfactory light

can be thrown. Section ſeventh is '*on the management of land gained from the ſea;*' and the author concludes by ſtating, that every kind of land gained from the ſea, is of great value, ſeeing it may be flooded, and rendered artificially rich, by freſh water, and by the ſea, at all times, or as often as the owner may judge it neceſſary.

We have now examined a work which promiſes to be of ſome celebrity, and calls for the particular attention of every Scotſman, becauſe in ſeveral reſpects it may be conſidered as the firſt of the kind undertaken by a native of this country. The author generally ſhows himſelf well acquainted with the ſubjects which are diſcuſſed, and ſeldom recommends any meaſure but ſuch as are practicable and eaſily executed. We muſt except his ſcheme for carrying embankments even into the bed of the ſea; and feel ourſelves diſpoſed to conſider him, in that caſe, as drawing bills on his imagination, which will not be ſoon retired. If he is correct, there would be no difficulty in running an embankment from the point of Gullen-neſs to the entrance of Leith harbour, and adding thouſands of acres to the national domains!

The work is dedicated to the KING. 'Two conſiderations,' ſays the author, 'emboldened me to requeſt the honour of laying the following obſervations before your MAJESTY. Your MAJESTY has long been a cheriſher aud protector of the polite and uſeful arts; and the deſigns &c. which I had the honour to make for laying out the grounds of her Royal Highneſs the DUTCHESS OF BRUNSWICK gave ſo much ſatisfaction, that after having pleaſed one ſo well qualified to judge, and ſo nearly related to your MAJESTY, I conſidered myſelf as having ſome claim to your patronage.' We obſerve that the author gives his ideas upon the ſubjects treated of in this volume, either verbally, or in the form of a report, to ſuch gentlemen as are pleaſed to employ him; and that his terms are TWO GUINEAS *per* day, with travelling and extra expences. We wiſh him ſucceſs. N.

Facts and Obſervations relative to Sheep, Wool, Ploughs, and Oxen; in which the importance of improving the ſhort-wool Breeds, by a mixture of the Merino blood, is deduced from actual practice. Together with ſome Remarks on the Advantages which have been derived from the uſe of Salt. By JOHN, LORD SOMERVILLE. London, Miller, 1803.

WE beg pardon of Lord Somerville for delaying ſo long to notice this publication, and ſhall endeavour to compenſate for paſt omiſſions,

lions, by a more minute examination of the facts and circum-
es therein preſented, than we uſually beſtow upon works
milar extent. When men of rank and fortune devote their
and talents to the inveſtigation of uſeful objects, they may
aſt be conſidered as *endeavouring* to deſerve well of their
try; and, notwithſtanding their ſchemes may prove abor-
or be imperfectly calculated to promote real and ſubſtan-
mprovements, ſtill they are entitled to impartial and diſpaſ-
te conſideration. We premiſe theſe things, leſt any appa-
ſeverity in the remarks which we are in duty bound to
on this occaſion, ſhould be conſtrued, by ſuperficial read-
as proceeding from want of reſpect to his Lordſhip.

rd Somerville's principles on the leading branches of rural
nomy, are pretty well known to the generality of our read-
and, much as we reſpect him both in his private and public
city, unfortunately our ſentiments have ſeldom been in
n with thoſe he has inculcated. He is a keen advocate
the introduction of fine-wooled ſheep, probably under the
eſſion that our great trading ſtaple, the manufacture of
d cloth, cannot otherwiſe be preſerved in a proſperous ſtate.
ideas reſpecting that important implement, the plough, are
r different from thoſe generally entertained; and as to the
als that can moſt profitably be employed in working it, he
long given a decided preference to oxen inſtead of horſes,
ly on account of the great quantity of corn conſumed by
s, where they are employed for executing farm labour.

the treatiſe before us, his Lordſhip diſcuſſes each of theſe
rite topics in a deſultory and irregular manner. After an
natory introduction, the ſubject of ſheep is entered upon;
gh what is communicated in this part, was originally ad-
ed, in the form of a letter, to the Bath and Weſt of Eng-
Society. Some account then follows of the advantages
h may be gained from the uſe of ſalt, either in ſheep huſ-
ry, or for the preſervation of hay. The ſecond part, on
ghs, is chiefly taken from a letter written by his Lordſhip,
h 1802, to M. François de Neufchateau, ex-director of the
ch Republic, and member of the National Inſtitute. The third
is on the working of oxen, and concerning the cattle ſhows
ited by his Lordſhip, for three years paſt, at Langhorn's
ſtory. The concluding pages, from 116. to the end, are
anomalous caſt, and cannot be claſſified.

ter ſtating the advantages that may be gained from croſſing
outh-Down and Ryeland ſheep with thoſe of the Merino
aniſh breed, which, ſo far as wool is concerned, may be
ed as conſiderable, his Lordſhip (p. 7.) ſays,

'It

'It has been deemed the criterion of a good and profitable breed of ſheep to ripen early, becauſe there is room to multiply ſuch breeds, far beyond thoſe of ſlower proof. If a ſheep can come to market at two years old, his fleece will be long enough for our manufactures, and not ſold at an inferior price as ſkin wool: much before this period it would be unfit. The growth of any high proof breed of ſheep, is far greater the firſt and ſecond than the third year; therefore it may be urged, that more profit can be had from the animal at this time, than at any later period, its growth and fleece conſidered. If attempts had been made to bring into general uſe a breed of ſheep, whoſe fleeces were of value, but incapable of getting fat, we ſhould be receiving with one hand, what we were throwing away with the other; no general benefit could reſult.'

On this point we perfectly agree with his Lordſhip, being ſatisfied that no other object, except the greateſt profit, *in wool and carcaſe jointly*, from a given quantity of land, ought to have the leaſt weight with the farmer when ſelecting a breed of ſheep. Whether his Lordſhip has aſcertained the particular breed capable of yielding the greateſt profit, ſhall now be inveſtigated.

In the 9th page he aſſerts that a croſs betwixt the Bampton breed (long-wooled ſheep bred in his neighbourhood), and the new Leiceſters, decreaſed the weight of the animal not leſs than 5 lib. *per* quarter in four years, though depaſtured on land worth 55*s*. *per* acre, ſituated in the vale of Taunton, 'proverbially known to be one of the moſt fertile ſpots in this kingdom.' Here his Lordſhip exultingly exclaims,

'A man muſt be blind, who could withſtand ſuch evidence as this. Nature pointed out, that the ſtock was too coarſe in quality, or our climate unfit, it matters not which: the fact was plainly marked, and it was merely an act of common prudence to follow her dictates. How many thouſands, how many tens of thouſands of acres are there in Great Britain, which ſtand exactly in the ſame predicament!' p. 9.

The circumſtances above ſtated, would be of a ſingular nature, were they received in the way meant to be conveyed by his Lordſhip. It deſerves notice, that he has omitted to ſtate the original weight of the Bampton ſheep or their after weight when diminiſhed by a croſs with the Leiceſters. Probably the Bampton, like the old Teeswater breed, were of great weight, therefore the decreaſe might be no more than what would naturally follow a croſs with ſheep of ſmaller ſize. On this point, however, we are left entirely in the dark. Two queſtions however may on this occaſion be put to his Lordſhip. Was any experiment made with the *pure new Leiceſters* of the beſt kind, and did ſuch decreaſe in weight? And, can a ſingle inſtance be produced of a ſimilar effect having taken place with pure Leiceſters in other parts of the kingdom?

His

His Lordſhip goes on to ſtate, that the land which carried 45 of theſe half bred ewes, was immediately ſtocked with 150 Ryelands, though '*his neighbours ſaid they would all be ſtarved.*' This proves nothing. It is poſſible that one true bred Leiceſter ſheep might pay as much profit as three of thoſe Ryelands: we do not ſay that it would have been the caſe; but we ſee nothing in his Lordſhip's ſtatement to prove the contrary. Had his Lordſhip taken 20 of the beſt new Leiceſters, and 20 Ryelands, and weighed their food for two or three months; and if the reſult had been, that the long-woolled ſheep eat three times the quantity of the Ryelands, this would have decided the buſineſs at once, and proved more ſatisfactory than his Lordſhip's lamentation, 'that we are ſuch ſlaves to ſize, that the eye can hardly reſiſt it.'

We perfectly agree with his Lordſhip when he ſays, (p. 13.) 'Where land is deep and ſtrong enough for long-woolled ſheep, there let them be kept.' Why then not in the Vale of Taunton, which he pronounces to be 'the richeſt land in the kingdom?' But we cannot agree with his Lordſhip's aſſertion, that 'land in the Vale of Taunton might have ſupported coarſe-woolled ſheep, in ſize, had they been puſhed in firſt year's graſs, *or buried in red clover up to their eyes*, and *the refuſe mown afterwards for hay.*' On this paſſage we muſt beg leave to obſerve, that we have never ſeen a practice ſimilar to this amongſt the breeders and graziers of the improved long-woolled ſheep; on the contrary, they contrive to have their lands ſo ſtocked, as to keep their graſs ſhort; and the firſt year's clover is frequently ſtocked at the rate of from 7 to 10 ſheep per acre, even in places which have no pretenſions to vie with the richneſs and fertility of the Vale of Taunton.

From his Lordſhip's lamentations about our being ſuch ſlaves to ſize, and other expreſſions in the work, it would appear he connects great ſize and long-woolled ſheep together; which is by no means the caſe. The ewes and yearling wethers, of the improved breeds, weigh from 18 to 20 lib. per quarter, which we hope his Lordſhip will admit to be not much too large; and theſe have been found, on all proper ſoils, the moſt profitable of any other breed they have been tried with. How far they may ſtand the teſt, when put in competition with his Lordſhip's favourite fine-woolled breeds, remains yet to be decided by future experiment. The fine-woolled fleece is certainly of more value than the long-woolled. His Lordſhip ſtates the value of the half South-Down and half Spaniſh to be 12s. The value of the fleece of the long-woolled ſheep is 6s. Here is a ſuperiority of 6s. per fleece in favour of the fine wool. But if the carcaſes be compared, we are inclined to believe, that a difference of more than 6s. will be found in favour of the long-woolled ſheep; and that the

wool and carcaſe of a new Leiceſter ſheep, at 15 months old, will always be found of more value than thoſe fine-woolled breeds of the ſame age, which his Lordſhip ſeems ſo anxious to ſubſtitute in their room. It is very probable, that if his Lordſhip's fine-woolled breeds were ſubſtituted every where for the long-woolled, the conſequences would be, a conſiderable decreaſe in the price of fine wool, (perhaps to the ſame level as that of long wool); and a diminution of the quantity of mutton; whereby the manufacturer and the labouring poor would have 2 lib. of fine eating mutton with high-coloured gravy, inſtead of 3 lib., which he can purchaſe, at preſent, for the ſame money as the 2 lib. would then probably coſt him.

His Lordſhip may conſider this reaſoning only as conjecture and aſſertion, without any proof from fair experimental trials. We admit that he may; but is not his whole book made up of ſimilar materials? and does it furniſh one deciſive experiment for eſtabliſhing the ſuperiority of one breed over another? We think none are furniſhed; nor have we ſeen any thing in it ſufficient to aſcertain the breed of ſheep, which will bring the moſt profit *in wool and carcaſe jointly*, from the ſame quantity of food. At the ſame time, we heartily join his Lordſhip in thinking, that 'it is not the ſize of individual ſheep, but the quantity of good meat and wool per acre, which muſt enrich the farmer, and feed the public.'

We now come to what may be called the ſecond part of this publication, wherein ample juſtice is done to the character of the celebrated Walter Blyth, who wrote on agriculture during the Protectorate of Oliver Cromwell, and who entertained ſentiments full as correct on the principles of that art, as any of our moſt enlightened modern agriculturiſts. His *Improver Improved* contains moſt judicious opinions on the leading topics of huſbandry, and concerning the implements then uſed. With the *double* plough he appears to have been well acquainted; and perhaps it was from him that Lord Sommerville procured the knowledge of an implement which many people have viewed as his own invention. His Lordſhip, when quoting a paſſage from Blyth, on the conſtruction of ploughs, adds, 'I was fortunate enough to purchaſe a copy of this book ſome weeks ago, and I have the more pleaſure in giving an extract from it, becauſe it is as ſcarce as it is valuable.' The remark is correct, both as it applies to the value and ſcarcity of the book; but we have the ſatisfaction of being able to inform his Lordſhip and others, that a new edition, with explanatory notes, is in contemplation, which, when executed, will afford every perſon an opportunity to peruſe a book, now only to be found in the libraries of the curious.

Lord Somerville explains to the *ex-director* the various ploughs uſed

uſed in this country, and diſcovers much complacency when he ſpeaks of the double furrow plough. After quoting Blyth, he goes on to add (p. 76.) 'Now, Sir, I am to prove whether or not I have marked out any of that improvement which he ſays the plough carrying two furrows is capable of.' That improvement ſeems chiefly to be confined to a moveable mould plate, the principle of which plate is 'to depoſit the furrow *at any angle required*, and to qualify it thereby for the different purpoſes of huſbandry.'

Here it may be remarked, that his Lordſhip does not ſeem to be aware, that the poſition of the ſod depends more on the proportion of the depth to the width of the ſod, than on the form of the mould-board. If his Lordſhip would try to cut a furrow as deep as it is broad, with his plough, he would find his moveable plate would not depoſit the furrow at any angle required; and that the ſurly ſod would not be ſo polite as obey the power of his Lordſhip's plate, but would ſtand on edge, and not turn at all; and if the ſod was nine inches broad by ſeven deep, he would find that it was not in the power of his plate to lay it at an angle of 40 degrees, or in any other poſition than an angle of 51 degrees.

His Lordſhip's plough being limited to furrows of only 9¼ inches wide, whenever ſuch are required to be laid in a flattened poſition, they muſt be ploughed very thin; for inſtance, if they were required to be laid at an angle of 30 degrees, the depth could not be much more than 4½ inches.

But if it were neceſſary (as is frequently the caſe in ploughing up leas) that the land ſhould be ploughed ſix inches deep, and be laid at the ſame angle of 30 degrees, the width of the furrow muſt be 12 inches. This is not in the power of his Lordſhip's plough to execute; but how eaſily is it accompliſhed by a ſingle ſwing plough, which is confined to no dimenſions of furrow, and can be made to plough at any width or depth, at the pleaſure of the ploughman!—yet his Lordſhip aſſerts, 'I will be bold to ſay, that no ſingle furrow-plough, whether conſtructed in China, in France, or in England, has ever yet, or EVER WILL BE, able to anſwer all thoſe purpoſes, without the aid of a moveable plate.' We ſo far differ with his Lordſhip, as to think his moveable plate will not anſwer the purpoſes expected, eſpecially on ſtrong ſoils and old ſwards; and feel bold enough to ſay, that, if it has any uſe, we hope it will not be the laſt improvement that '*ever will be*' added to ſo valuable an implement as the plough.

His Lordſhip recommends his plough for having a thinneſs of breaſt, but does not point out any particular form. Mould-boards may be too thin in the breaſt, as well as too full. They ſhould be ſo conſtructed that the ſod may preſs equally upon every part, from one end to the other. But it does not appear that his Lordſhip has made any experiments for aſcertaining this point, or gi-

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ven any reaſon why his mould-boards will paſs with leſs reſiſtance than any others.

By the figure of his Lordſhip's plough, it appears that it will not work without a wheel. This appendage is not neceſſary to the well-going of a plough, but is an incumbrance, and deſtroys a certain portion of the power of the draught: A plough conſtructed upon true principles will go perfectly well without wheels.

It is ſaid, at page 86, that there is a difference of one horſe in four, in favour of the *curved ſingle beam two-furrow plough*, when compared with the *double beam two-furrow plough*. But it does not appear that this has been demonſtrated on mathematical principles, or proved by any fair experiments; and we are pretty certain it will not be found ſo when fairly tried, by two implements equally well conſtructed; and as to any advantages being derived from the '*curved ſingle beam*,' and the bodies of the ploughs being fixed at an invariable diſtance, we are dull enough not to ſee them; but are inclined to give the preference to a double plough, where the bodies can be ſet at different diſtances, ſo as to plough furrows, of various widths and depths; and are perſuaded that his Lordſhip's plough will require four horſes, as well as the other; though it is poſſible that three horſes may be found, for a particular occaſion, as ſtrong as four common ones. But if it requires four horſes to work a two-furrow plough, we cannot ſee any advantage gained by their uſe, as the ſame men and the ſame horſes required for the two-furrow plough will work two ſingle ploughs; and we have no heſitation in aſſerting, that they are much ſimpler implements, more uſeful, on almoſt every occaſion; and that no advantages can be gained by the adoption of his Lordſhip's plough in thoſe diſtricts where the ſimple ſwing plough is in conſtant uſe, and properly underſtood.

What his Lordſhip advances on the queſtion of working oxen, ſhall now be conſidered.

In the rude ſtate in which huſbandry long remained in this iſland, oxen were generally employed by agriculturiſts, but progreſſively laid aſide almoſt in exact proportion as improvements were introduced. This is a fact, not a ſpeculation, and could not have occurred, had not the great body of agriculturiſts been convinced that, by ſubſtituting horſes for oxen, farm labour would either be more expeditiouſly executed, or performed at leſs expence. That the operations of ploughing and carting are more expeditiouſly accompliſhed with horſes, than with oxen, is an incontrovertible truth; but that theſe operations will, in all caſes, be executed at leſs expence by the former than by the latter, has been diſputed by many people. On theſe points, however, we have never entertained a doubt; becauſe, if oxen are em-

employed to perform horſe work, they muſt be fed like horſes; and as a greater number of the former than the latter muſt be employed to perform the like extent of work, the quantity of manual labour is thereby neceſſarily increaſed.

Of late, the other ſide of the queſtion has been eſpouſed by many perſons; and attempts made to reintroduce oxen as general beaſts of labour, though hitherto with little ſucceſs. Among others, Lord Sommerville has boldly ſtood forward in ſupport of the ox ſyſtem, and done much, both by precept and practice, to bring oxen into faſhion. He has eſtabliſhed a cattle ſhow at London, where two prizes of 30l. and 20l. are annually given to the owners of the beſt yokes of oxen which have laboured, during a given period, to produce corn for the uſe of man, without taſting it themſelves. We give his Lordſhip full credit for the goodneſs of his intentions, though by no means diſpoſed to think that their accompliſhment would prove conducive to the proſperity of agriculture, or even to the general welfare.

His Lordſhip's motive for offering the above mentioned premiums, is to encourage the working of oxen inſtead of horſes; being perſuaded, that ſubſtituting oxen for the draught, inſtead of horſes, would conſiderably increaſe the quantity of human food; and that both more corn and more beef would be brought to market, were this meaſure univerſally adopted. This is a ſubject upon which a great deal has been ſaid and written, and many aſſertions and conjectures have been brought forward by the advocates on both ſides. The quantity of corn conſumed by horſes, ſeems to be the great bugbear held out by their opponents, without ever once candidly conſidering the other ſide of the queſtion.

We conceive that the faireſt mode of examining this ſubject, will be to aſcertain the quantity of ground neceſſary for ſupporting a team of oxen, and a team of horſes, which will do an equal quantity of work.

The greateſt difficulty ſeems to be, in aſcertaining the number of oxen that will do the ſame work as two horſes. Some ſay that oxen, to work conſtantly the year round, ſhould not labour more than half a day at a time, or three days a week; and that, from the ſlowneſs of their motion, it will require ſix oxen to do the work of two horſes, taking into account the breaking in of the three year old ſteers. Others, on the contrary, ſay, that four oxen will do the ſame work as two horſes;—ſo, probably, truth lies betwixt the two. But, for the ſake of argument, we will take the leaſt number, namely, four, and from that endeavour to make an eſtimate.

From experiments recorded in the Northumberland Report, the food conſumed by a horſe and an ox, is in the proportion of 16 to 20, or as 4 to 5; of courſe, if it requires 4 acres to ſummer

mer two horſes, it will take 10 to ſummer four oxen. Now, ſuppoſing they conſume equal quantities of ſtraw in the winter, and allowing two acres to grow corn for the horſes, and one acre for turnips for the oxen; it will be found that the four oxen require 5 acres more for their ſupport through the year than the two horſes: And though the oxen eat no corn, they occupy 5 acres of land for their ſupport more than horſes; which five acres would have produced corn for the market, at a moderate computation, not leſs than 30 buſhels of wheat or barley, and 50 buſhels of oats,—beſides $1\frac{1}{4}$ acre of turnips, and the ſame quantity of clover. In reſpect to beef, it is a well known fact to graziers of ſhort-horned cattle, that an ox three years old, put to fatten for ſix months, is worth more to the butcher at the end of that period, and will bring more beef to market, than the ſame ox, worked three years, and then fattened ſix months, would do at $6\frac{1}{2}$ years old. Hence, if the land employed in ſupporting this working ox $3\frac{1}{2}$ years, were applied to rearing and feeding another ox, it is plain that a conſiderable greater produce in beef, tallow and leather, would be brought to market, by purſuing the ſyſtem of *breeding oxen* for *fattening*, inſtead of *working*; as the oxen would in that caſe be all brought to market at $3\frac{1}{2}$ years old, inſtead of $6\frac{1}{2}$; and, of courſe, the public ſupplied with nearly double the quantity of beef they would be, were oxen worked inſtead of horſes, and not killed till they were $6\frac{1}{2}$ years old. The natural courſe of things, in fact, ſeems to be this, that oxen ſhould be fed, as ſoon as may be, for the uſe of the table, and that horſes ſhould be employed for the labour of the field.

It may be added, that the ſuperiority of the horſe over the ox, ariſes from the great deſpatch of buſineſs, and conſequently from the ſaving of mens' wages. A horſe is alſo able to give extraordinary work, when occaſion calls for it; which is a moſt valuable quality in our unſteady climate. The ox, on the other hand, has comparatively a ſlow ſtep; and to put him beyond it, is to do injuſtice to his conſtitution. He will labour, but it muſt be ſlow; he muſt feed, and this requires time. If, therefore, much work is required, double ſets are neceſſary; which may no doubt be done, on breeding farms, without loſs; but if attempted on corn farms, would cut deep into the produce.

Thus we have given our ſentiments on the principal ſubjects treated of in this publication, though the taſk of going over it has not been an eaſy one. His Lordſhip wanders much, ſkips from one ſubject to another, and writes in ſuch a deſultory way, that we may almoſt ſay, as Sir John Falſtaff ſaid to Dame Quickly, '*One does not know where to have*' him. N. & B.

BRANCH

BRANCH III.

AGRICULTURAL INTELLIGENCE.

THE winter quarter, throughout, has proved extremely favourable to the huſbandman's operations; and rarely has rural labour, of every kind, been more fortunately circumſtanced than at preſent. Wheat ſeed, on the fallows, clover leas, and bean ſtubbles, was finiſhed before the end of November, to a greater extent than hitherto known in Britain: and, latterly, ſome has been ſown, in the dry, early diſtricts, on fields which carried turnips. Winter fallows for wheat and beans were executed in a ſatisfactory way. Clover leas and old graſs lands ploughed for oats in the beſt manner. In ſhort, the plough has hardly ſtood ſtill for a day in the corn diſtricts. The few froſts were of much uſe in allowing manure to be carted out, and in mollifying the ſtrong ſoils; whilſt they were neither ſo extenſive nor ſevere as to injure the wheats and turnips, both of which crops continue healthy and vigorous.

In this article, laſt Number, it was noticed that grain markets were on the riſe, and reaſons were aſſigned for the advance which had then taken place. It is now aſcertained beyond diſpute, that the wheat crop of England was almoſt univerſally defective; and that in the beſt diſtricts, thoſe on which the markets depended chiefly for ſupplies, the deficiency was greateſt. In Scotland, on the contrary, the crop, as we then ſtated it to be, turns out fully equal to an average one, and capable of affording important relief to our neighbours. A conſiderable quantity of grain, chiefly wheat, has been already ſent to England, and orders for more are daily arriving.

As was formerly predicted, prices continued rapidly to get up till the middle of November, eſpecially of wheat and barley, whilſt thoſe of oats and peas remained with little variation. The high prices in the London market, for the firſt mentioned grains, which leſs or more regulate every market in the iſland, cauſed large orders to be ſent to the corn diſtricts; and in the fulfilment of theſe orders, prices were offered that occaſioned a greater thraſhing than uſually happens ſo early in the ſeaſon. When the purchaſes ſo made arrived at market, the uſual effects were produced, a temporary glut and a reduction of value, which led many people to believe that the ſcarcity was not ſo great as originally apprehended. Matters, however, are now taking a different turn. The temporary glut ſeems to have gone off, and prices are faſt returning to the level which they formerly maintained.

Under theſe circumſtances, it muſt be conſidered as unfortunate, that the regulations of laſt Seſſion, reſpecting the import and export of grain, were paſſed into a law at that time, becauſe, wiſe and ſalutary as they are, it was ſoon diſcovered that, by ſelfiſh and ſuperficial thinkers, they

they would be aſſigned as the ſole cauſe of the advance which gradually took place in the markets from the time of their enactment. Such people did not ſtop to inveſtigate the ſtate of the crops, or to conſider the nature of the weather which unhappily prevailed in the month of July, when the proceſſes of filling and ripening were going forward. They did not reflect that the natural tendency of the bill, we mean in the firſt inſtance, was to quicken, not to decreaſe importation; becauſe, after the 15th November, the rates, at which importations could be made, conſiderably advanced. Nor did they take into account, that exportation could not take place, conſequently no bounty could be drawn, when the average prices ſo much exceeded thoſe at which the one could be executed, and the other obtained. To a reaſonable and diſpaſſionate man, the bill of laſt Seſſion, whatever opinion may be entertained of its real object or merits, muſt appear in no other light than as a dead letter, ſo far as its operation was connected with the late and preſent high prices. That it is calculated to raiſe prices to a certain extent, we readily grant; becauſe, if meant for the relief of the grower, it would otherwiſe have been uſeleſs; but the rates, fixed on therein, for regulating import and export, were exceeded by the averages of ſeveral diſtricts before the time fixed for its operation; nay more, prices have declined ſince the 15th November, when the bill was to have the force of a law; conſequently, all that has been urged againſt it on that ſcore is extraneous and irrelevant.

We have liſtened with attention to the *hue* and *cry* lately raiſed, and to the arguments adduced, in the manufacturing diſtricts, againſt the bill, and in favour of its repeal, and muſt confeſs that we regard the moſt of them as undeſerving of notice, and altogether formed on the true mercantile ſpirit, which, happily for the country, does not now maintain its former influence. From many others before us, we ſelect the reſolutions of the Lord Provoſt, Magiſtrates and Common-Council of Glaſgow, as entitled to ſome notice, not only becauſe of the ſuperior reſpect due to that body in their corporate capacity, but alſo becauſe, as might be expected, their reſolutions are expreſſed in more temperate language than what has been uſed by other public bodies, thoſe of the Chamber of Commerce excepted. The city of Glaſgow, in the reſolutions, declare their intention of petitioning Parliament, 1. To reduce the prices at which grain is allowed to be imported from foreign countries on payment of the low duties: 2. To regulate theſe prices according to the average of the whole maritime diſtricts of Great Britain: 3. To allow the free tranſmiſſion of every kind of grain, at all times, from any one port in the kingdom to another: 4. To enact that, when importation from the Britiſh colonies in America is permitted, the ports ſhall continue open for ſix months at a time.

To the ſecond and third objects of the petition we are not hoſtile, our ſentiments, as often declared, being friendly to a free trade in grain within the iſland; and we can ſee no difference whether this trade is ried on internally with a waggon, or coaſtwiſe with a ſhip. The t object we decidedly oppoſe, becauſe it goes virtually to a repeal of the

the act of laſt Seſſion, though ſuch was paſſed upon wiſe and cogent motives. To the laſt we can by no means agree, becauſe a meaſure of this nature would nearly be the ſame as permitting a free trade in grain with the Britiſh colonies in America at all times.

The reaſons, on which the firſt prayer of the petition is founded, do not diſplay ſuch accuracy in buſineſs as might have been expected from the reſpectable petitioners. My Lord Provoſt, &c. in their ground-work, ſay, in ſubſtance, that the average price of grain, for the whole of Scotland, from May 1793 to Auguſt 1804, has been examined, and that it is found that, at the rates fixed by the recent ſtatute, the ports, during the above period, would have been *almoſt* uniformly ſhut, with the exception of the years of ſcarcity. Now, granting the correctneſs of this ſtatement, but denying the inference meant to be drawn from it, we preſume that a reference to paſt times proves nothing, when directed againſt the late act, except this one thing, namely, that if Britain does not produce a ſufficient quantity of grain for the conſumption of its inhabitants, a riſe on the home price, to a certain extent, muſt take place before recourſe can be had to foreign countries, or other places, without the Iſland, for additional ſupplies. Allowing, for argument's ſake. that an annual deficiency takes place, this deficiency would be regularly ſupplied by imports as formerly, though confeſſedly on higher terms. If my Lord Provoſt and his brethren meant to inſinuate that, under the preſent bill, the ports would never be open for importation, *except in times of ſcarcity which approached to famine*, they either impoſed on themſelves, or intended to impoſe upon others; and yet, in the argument adopted by them, what elſe could be their meaning?

The ſecond reaſon is directly in the face of an eſtabliſhed fact, namely, that labour has riſen more in value than proviſions. My Lord Provoſt, &c. declare 'that the prices, at which, according to the late act, the different kinds of grain, eſpecially oats and oat meal, may be imported on payment of the low duties, are much higher than the exiſting circumſtances require.' Now, what are we, in this caſe, to underſtand by *exiſting circumſtances?* Do theſe gentlemen mean the circumſtances under which the *grower* is placed, that is to ſay, the rate of his rent, the value of his labour, and the extent of his taxes? or, is it the circumſtances which affect the *conſumer*, and, among others, his relative ability to purchaſe bread and meal at a trifling advance of price, that we are called to conſider? If the *firſt* are meant, we preſume that a ſingle argument, in favour of the proviſions of the late ſtatute, muſt be regarded as ſuperfluous, becauſe the expences of cultivating land are univerſally acknowledged to have, of late, conſiderably increaſed. If the *ſecond*, we muſt regard the general rate of wages as much more advanced than what is required, to meet any alteration of the prices of grain which can poſſibly take place under the operations of the new corn law. We are ſatisfied concerning the iſſue, if the merits of that law are to be determined by an appeal to *exiſting circumſtances*. In fact, the value of money is ſo materially altered, as to juſtify us in maintaining, that the rates fixed

by the bill, though *nominally* higher, are in *reality* lower than thoſe fixed on in any former bill, ſince corn laws were judged expedient and neceſſary.

If any thing on this ſubject, from a manufacturing or mercantile body, could give us ſurpriſe, it would be what is ſaid concerning oats and oat meal; becauſe the rates, at which theſe neceſſary articles may be imported, are in reality lower, comparatively ſpeaking, than thoſe which affect other grains. Oats may be imported at the low duty of 2d. *per* quarter, even from foreign countries, when the average price is 22s. *per* quarter, or about 16s. *per* Linlithgow boll, which no perſon can regard as an extravagant price, as meal can then be afforded at 13d. *per* peck. It alſo deſerves notice, that for twelve months paſt, meal has ſeldom been higher in the Glaſgow market than in that of Edinburgh, and, at the preſent moment, does not exceed 1s. 4d. *per* peck, or 2d. *per* pound weight. If any thing was wanting to prove that markets are regulated more by the productiveneſs of the crop than by corn laws, it might be got from the preſent prices of oats and oat meal. Oats, laſt ſeaſon, proved to be an average crop; conſequently, prices have kept moderate, and have not advanced much above the importation rates. Wheat, on the contrary, was very deficient in many diſtricts; conſequently, advanced with rapidity above the prices at which it could be imported. If this advance was occaſioned by the late act, why was not the price of oats affected in the ſame manner? No other anſwer can be given, than that oats were a good crop, and wheat a bad one. The law for regulating the *import* and *export* of both, paſſed at one and the ſame time; yet we find that it has had no effect in *regulating* the market prices of either, except ſo far as aroſe from prohibiting import below certain rates therein fixed.

If my Lord Provoſt and his brethren meant to make ſuch an impreſſion upon the Legiſlature as would have produced a repeal of the act of laſt ſeſſion, they ought to have taken up a different ground, and ſhewn that the prices, *fixed* for regulating import, had been raiſed more than was called for by *the increaſed expence of farm labour and public burdens.* This would have been a ſound foundation on which their after reaſons might have been built; and could they alſo have ſhewn, in a ſatisfactory manner, that the rate of wages, paid by them to the operative manufacturers, was not in uniſon with the advance of price which, to a certain extent, will take place in the grain market in conſequence of the new law, they might have expected ſucceſs from their petition. If a free trade in grain was wiſhed for, they ſhould have begun by diſclaiming and renouncing all monopoly. This line of conduct, to be ſure, would have been contrary to the mercantile principle, though certainly agreeable to the one which directs us to do to our neighbours what we would wiſh done to ourſelves.

That a ſtrong puſh will be made in Parliament to repeal or amend the corn law, need not be doubted; and it is a duty incumbent on the landed intereſt to meet their adverſaries with firmneſs and reſolution. If they ſit with their arms *a-kimbo*; if they ſuffer the table of parliament

ment to be crowded with petitions from manufacturing diſtricts, without claiming to be heard in defence of their own intereſt, then defeat and diſgrace muſt inevitably follow. Agriculture has often, and with juſtice, been denominated the firſt of the arts, whilſt thoſe employed in it may be ſafely conſidered as the moſt numerous and moſt uſeful claſs of manufacturers. Every wiſe government will therefore protect their intereſt with diligence and aſſiduity. Such will not offer a boon to foreign agriculturiſts, or give them a *ſtance* in the home market on preferable terms, merely to gratify the humour of other traders and manufacturers. In fact, the Glaſgow merchants would rather import wheat at all times from America, than from the eaſtern coaſt of Britain, and that for a reaſon which, with them, is the beſt of all reaſons, that greater profit is thereby gained. For

'Give but a merchant preſent profit,
'He takes, and thinks no further of it.'

Such do not care an old ſong about the improvement of the country, or the ſucceſs of its huſbandry. Theſe things they leave to

'Your lords, your worſhips, and your honours.'

We may remember the activity diſplayed by the Weſt Indian merchants to keep the diſtilleries ſhut, which would likely have ſucceeded, had they not been withſtood by the guardian angel of agriculture under the ſemblance of Mr Addington. It is to be hoped that his Successor will not be leſs attentive to the beſt and trueſt intereſt of the country, nor countenance a meaſure, that has for its object the ruin of Britiſh agriculture; a circumſtance which would neceſſarily attend the introduction of foreign grain into our markets, on lower terms than thoſe at which it can be ſucceſsfully cultivated by huſbandmen at home.

It has been confidently reported, of late, that the property tax is to be doubled; a meaſure to which, if called for by ſtate neceſſity, we can have no objection, providing the tax, ſo far as it affects the occupiers of land, is impoſed upon them in the ſame way, and to the ſame extent, as on other claſſes of the community. If the principles, adopted in the act 1803, whereby rent was made the criterion of income, are meant to be continued, we muſt offer our ſolemn diſſent from the meaſure; becauſe ſuch are oppreſſive, unequal, and calculated to raiſe double more money from farmers, than from other claſſes who enjoy equal incomes. The evil is great, under the exiſting law; but, if the tax were to be doubled, the evil would be increaſed, not in an arithmetical, but in a geometrical progreſſion. A tax of a tenth *may* be paid; but one which would go to a half, or even to a fourth, would infallibly bring ruin and deſtruction on numberleſs individuals.

As the five per cent. tax is, at all events, to be collected for another year, viz. for 1804, according to the preſent regulations, we are in duty bound to offer a few remarks on the way and manner in which it was aſſeſſed and collected for 1803: This we ſhall do with as much brevity as is conſiſtent with the importance of the ſubject under conſideration.

The

The chief points on which different opinions were held in Scotland, concerning the Property act, were the clauſes which applied to farmers poſſeſſing under leaſes whereof ſeven years had elapſed, and the deduction of one eighth from the rent of tithe-free farms. On the firſt point, we believe few counties had much reaſon to be diſſatisfied, becauſe valuations were generally made on liberal and equitable principles, that is, according to *the worth of the land at the time*, all the circumſtances, under which the occupier was placed, being conſidered; but, on the other point, namely, the deduction of one eighth from rent, a greater difference of opinion prevailed; and in very few counties, perhaps in not more than four or five, was this deduction obtained, though more plainly and diſtinctly expreſſed than almoſt any other part of this multifarious and complicated act. In fact, the people who diſputed the deduction, argued rather againſt its expediency and propriety, than againſt the validity of the enactment. They ſeemed to aſſume the right of *ſitting in judgement* on an act of Parliament, inſtead of confining themſelves to the duties attendant upon its execution. If the deduction had been refuſed in our caſe, we would have ſuffered a diſtrain, and brought an action of replevy. The words of the act, applicable to the deduction, are ſo poſitive, that the conteſt would have been an eaſy one. The propriety and expediency of the deduction may be conteſted, but not the enactment itſelf, which expreſsly, and without any limitation whatever, applies in the like manner to farmers in both countries.

One thing occurred in the collection of this tax, at leaſt it happened in the county we are connected with, which proves how little the ſubject is underſtood even by thoſe appointed to execute the act. The ſmall tenants, indeed every one, whatever rent was paid, were aſſeſſed in the full ſum of ſixpence per pound of rent, after the deduction of *one eighth* therefrom was made; though, to any perſon poſſeſſed of a tolerably clear head, it muſt be obvious that one half of the rent was to be taken as income, and abatements made accordingly. In fact, every tenant paying leſs than 137l. ought to have been exempted from the tax, becauſe, according to the act, it requires ſuch a rent to yield 60l. of income; and none were liable to the *maximum* tax of 6d. in the pound, who paid leſs than 342l. 10s., except they had income from other ſources. We ſtate theſe particulars, in order that the tenantry may be on their guard againſt erroneous charges in future; and recommend that abatements ſhould be claimed, in the returns made to the commiſſioners, by every one who is placed under the circumſtances condeſcended upon.

We underſtand that it is in contemplation to eſtabliſh a branch of the Morayſhire Society, for the benefit of the widows and orphans of farmers, in the diſtricts ſouth of the Forth. This is a wiſe and ſalutary meaſure, and deſerving of ſupport. We mean, in next Number, to point out the objects of the Society in a minute manner. In the mean time, ſome particulars reſpecting the eſtabliſhment may be learned, on applying to Meſſrs Murray Baxter & Maſon, inſurance-brokers, Edinburgh

Sir

Sir George Steuart Mackenzie of Coul, Baronet, with a view
nefit agriculture in an important branch, authoriſes us to offer,
name, a *gold medal* of *five guineas* value to the author of the be
on the ſtoring of turnips and ruta baga for the ſupply of win
ſpring conſumption. Competitors for this premium will be f
as lodge their eſſays, on or before the 10th of June, with th
liſhers of this Work, affixing a motto to them, and encloſing
note containing their names and addreſs, with a copy of the m
the outſide, none of which ſhall be opened, except the on
relates to the eſſay for which the medal ſhall be adjudged.
prize eſſay ſhall be inſerted in the Auguſt Magazine. Sir C
with a partiality which calls for every acknowledgement, has been
to conſtitute the CONDUCTOR ſole judge for determining the m
the ſeveral competitors.

The weather has been hitherto exceedingly favourable for
cattle and ſheep on turnips; and it has been remarked, that in f
ſons this valuable root has afforded ſo full a ſupply of food as
preſent one. Fields, under this crop, proſpered amazingly in au
and it may ſafely be ſaid, that, in every caſe, they have turned
perior to expectation: So has ruta baga. Fat cattle and ſhe
tinue pretty plentiful, and draw prices from 8s. 6d. to 9s. p
Amſterdam, ſinking offal. Lean ſtock of all kinds, from the g
of the weather, is in a thriving way, and, according to every
ſent us from the breeding diſtricts, will be preſented in good ord
the graſs ſeaſon arrives, providing no unfortunate circumſtance
vene. *Jan.* 30. 1

EXTRACTS FROM PRIVATE CORRESPONDENCE.

SCOTLAND.

Letter from a Gentleman in Roſsſhire, Jan. 14.

'WE have enjoyed uncommonly fine weather, interrupted ind
caſionally by froſt, which will prove beneficial to the ploughe
A conſiderable part of our ſpare grain was early bought up a
prices, in conſequence of the great demand from the ſouth,
however, has recently ſlackened. Owing to the unfavourable w
at wheat ſeed time, the fields ſown with that grain do not look
as we could wiſh, though of late their appearance is much im
Potatoes were a more abundant crop than for many years paſt, w
a fortunate circumſtance during the preſent high price of meal.
this eſculent is ſo highly reliſhed by our people, that it forms thei
cipal food. Turnips are alſo a good crop; and, added to the f
ply of ſtraw this ſeaſon, will cauſe our cattle come to market

ſpring, in higher condition than cuſtomarily happens. The practice of giving turnips to wintering cattle in the ſtraw-yard was introduced by ſome ſouth-country farmers, and it is to be wiſhed that it were more generally adopted. A very extraordinary oppoſition has been ſtarted in this county againſt the propoſed improvements by bridges and roads; but, from the activity of ſeveral proprietors, hopes are entertained that it will be completely overcome.'

Banffſhire Quarterly Report.

Our operations have gone on with very little interruption ſince the date of laſt Report, and, in general, labour is well advanced. A briſk demand for grain prevailed about the end of November, and better prices were given than this county has been accuſtomed to receive for ſome time paſt, particularly for wheat and barley. The former is moſtly ſold, and brought from 35s. to 38s. per boll of 88 pints, and barley 25s. and 26s. per boll of 128 pints. It is now obvious that this article makes but a ſmall part of the crop, and what remains on hand is expected to bring a good price, notwithſtanding of the depreſſion which lately took place. Oats, which may be conſidered the principal part of our crop, have been bought in conſiderable quantities at 17s. and 18s., and ſeveral cargoes are already ſhipped. They are, however, fallen to 15s. and 16s., with little demand. What I hinted in my laſt is now fully verified; the crop turns out an abundant one, the oats doing remarkably well both in the barn and the mill. Potato oats yield rather better than 18 pecks from the boll, and a kind we lately got from Angusſhire gives 17 pecks. Although thraſhing did not commence early, on account of the fine autumn, the quantity of grain already ſold greatly exceeds that of ordinary ſeaſons. Feeding of cattle is like to be a bare trade with us, butcher meat being ſcarcely worth 7s. per ſtone, ſink offal: So that if a riſe does not take place in the ſpring, it is to be apprehended that a great part of our turnip will be conſumed with little advantage.——*Jan.* 17.

Letter from Upper Annandale, 17th January.

'The falſe alarms raiſed about the corn bill had an effect in raiſing the prices in October, which fluctuated from 2s. 6d. to 2s. 4d. per ſtone for oat meal, and from 5s. 4d. to 5s. per Wincheſter buſhel of firſt barley, but are now ſubſided to 2s. 3d. for oat meal, and under 5s. for firſt barley. The late unfavourable weather for ploughing has filled the corn mills to the doors, and contributed alſo to reduce the prices. Moſt part of the barley of this quarter has been diſpoſed of. There was little extra thraſhing in November, people on both ſides appearing diſpoſed to wait the iſſue of things, which at that time was uncertain. A conſiderable breadth of ploughing was accompliſhed before the late froſts commenced; and large quantities of manure were taken out during thoſe froſts, and depoſited in the fields intended for fallowing by green crops.

'Lord

'Lord Meadowbank's compoſt (moſs and dung) produced me excellent turnips laſt crop, of all varieties, including Swediſh; and potatoes of better quality than thoſe grown on ſtable dung, and, what I was not prepared to expect, in larger quantities alſo.'

Dumfrieſſhire Quarterly Report.

THERE has ſeldom been a winter quarter more favourable than the preſent for farming purſuits. Little ſnow has fallen—the froſts have been moderate—the thaws gentle and temperate. The conſequences are, that cattle and ſheep are healthy, and in great ſtrength. Turnips have ſtood quite ſound, and ſeem to feed as truly as ever occurred in any ſeaſon.

Plough-work has gone on ſucceſsfully. The early ſown wheat vegetated briſkly, and is luxuriant. What was late ſown, upon potato land, remained long under ground, and ſome is not yet up. Much dung has lately been moved out of the ſtraw-yards; and it is ſatisfactory to ſee that farmers are generally adopting that beneficial practice which leſſens their ſpring labour, at the ſame time that it increaſes the value of the article.

Cattle ſold rather more freely at the end of autumn than expected, though the dealers had to travel farther ſouth than uſual. It is underſtood, however, that they were well paid for their journey. From this circumſtance, it is thought that ſtrong cattle will be in demand, and go off early in the ſpring. The demand for fat ſheep did not leſſen after Martinmas; but the great number of them in the country prevented their bringing laſt year's prices. By the repetition of good ſeaſons, they have increaſed beyond expectation; and the preſent moderate price of animal food is wholly owing to an overſtock. Indeed, the country never was more favourably circumſtanced for the conſumption of butcher meat. Tradeſmen are paid high wages—manufacturers are in full employment—and thouſands of *idlers*, who would have been half ſtarving at home, now fully fed on beef and pork in our navy and army. But the price of meat need not be expected to riſe much, unleſs we are viſited with cold and wet ſeaſons, which neceſſarily prove injurious to ſheep flocks.

Wheat of laſt year's growth is generally ſmall in the pickle, and of light weight, and has ſold at about 9s. per buſhel. Barley was good, and brings 5s. Oats, the potato kind, 3s 4d. Common kinds, 2s. 9d. Oatmeal, 2s. 4d. per ſtone.——*Jan.* 21.

Letter from an extenſive Farmer in Annandale, January 21.

'Our markets for all ſorts of grain were briſk in November, the demand from Liverpool and other ports in that quarter being conſiderable; but, of late, prices have experienced a reduction of from 12l. to 15l. per cent., with a proportional diminution of orders. Barley was not an abundant crop with us, nor was wheat good, much of it being blighted and ſmutted; but oats are plentiful. At Carliſle market on the 19th, wheat ſold at 3cs., barley 14s., potato oats 9s. 6d., com-

mon

mon ditto 7s. 6d. to 8s., all per Carliſle buſhel, equal to three Winchesters. I think there is not much more grain thraſhed out than uſual at this ſeaſon of the year, it not being the cuſtom of our farmers to thraſh faſter than cattle foddering requires.

'The number of ſwine in hand this ſeaſon is uncommonly great, and the price of pork fallen to 5s. or 5s. 3d. per ſtone of 14 lib. At our Dumfries market, from 200 to 250 head, weighing from 14 to 20 ſtone each, are ſold weekly, beſides many drove directly out of the county. Our chief demand is for the London market, where they are ſent in a dried ſtate; but Liverpool and Whitehaven likewiſe take a good deal off our hand. Sheep have not lately ſold well, though it is expected that the price of fat will ſoon move upwards. Our drovers brought their ſtore cattle to a good account this ſeaſon. At St Faith's fair in Norfolk, an uncommon number of Galloway and Fife cattle were ſhown, which, from the accounts I have obtained, paid the drovers handſomely. The Leiceſter ſheep ſeem to anſwer well with me, having had more demands for ſmall parcels of them than I could ſupply. I think that breed will ſoon become a common ſtock with us, much to the benefit of the land, and advantage of the owners.

'Potatoes are an abundant crop this ſeaſon, and a great many cargoes have been ſhipped for Liverpool and the neighbourhood at 18d. per 112 lib. The quantity on hand ſtill greatly exceeds what will be wanted for the ſupply of the diſtrict.'

Letter from Falkirk, January 22.

'The circumſtances of laſt quarter, like the barren period of the year it includes, afford little matter for an agricultural report. The ſeaſon, upon the whole, has been very open, and extremely favourable to field operations, conſequently ploughing is as far advanced as could be wiſhed in preparing for the enſuing crop. The ſame circumſtances have been favourable for keeping cattle long out of the ſtraw yards; but indeed fodder is in ſuch abundance, that this has been of much leſs conſequence than often happens. Although ſtraw has not been much wanted, the ready demand in the market for all ſorts of grain has cauſed thraſhing out to be as far advanced as uſually happens at this time of the ſeaſon. The wheats look admirably well, eſpecially ſuch as were early ſown. They have acquired a degree of vigour that will enable them to hold out againſt ſevere trials in ſpring, ſhould ſuch occur. Thoſe ſown later are a great deal more feeble; but of this deſcription few fields occur in our diſtrict. Nine tenths of our wheat being after ſummer fallow, we need ſeldom be thrown late in ſowing; and early ſowing is now generally admitted to be of great importance.

'Young graſſes continue to look very promiſing. It is rather ſurpriſing that the heavy crop on the ground laſt year did not prove more prejudicial to them. Some paſture fields have been already let at a rate greatly beyond that of laſt year; but, from preſent appearances, many very judicious people are much at a loſs to conceive how they can poſſibly make it out under ſuch an advance of rent. Our butcher market has

has been very fully ſupplied, and prices have continued pretty ſteady; any variation, however, being rather on the ſide of declenſion. Our grain market, at leaſt in the article of wheat and barley, during the laſt quarter, had riſen conſiderably, but for ſome months paſt has been gradually declining again. This has taken place in a greater degree with reſpect to barley, and ſhews unequivocally, that the demand for this article has upon the whole leſſened, as it is perfectly aſcertained that the quantity ſown laſt year was much below what had taken place for ſome years before. The diſtillers having lately uſed a great quantity of oats in their manufacture, may perhaps account for the fall in barley. Wheat may be noted at 40s., barley 28s., beans 21s.; potatoes 6s. 6d. per boll; oat meal 15d. per peck.

'Allow me to make a remark on the ſtate of our corn market, to which I am led, by obſerving, in a late newſpaper, ſome reſolutions of the merchants and manufacturers of Glaſgow, againſt the corn-bill, particularly ſetting forth the partial hardſhips thoſe manufacturing diſtricts, with which they are connected, muſt ſuffer above others in the kingdom, from its operation. I am not now ſpeaking of the general merit, or demerit of the bill, but merely whether its regulations have partially affected the weſtern or manufacturing diſtricts of the country in a greater degree than others of the kingdom, on which a great part of the complaint is reſted. From the language held, we would naturally expect to find, that the corn-market of Glaſgow, and thoſe much connected with it, would be higher than thoſe of the eaſtern, or agricultural counties of the kingdom. This at leaſt ſeems a natural inference, and, if it were the fact, would certainly go farther than many arguments in eſtabliſhing the truth of the peculiar hardſhips of that bill in its application to them. The market at Falkirk, ſituated in a rich corn country, is well known to be one of the moſt conſiderable in Scotland, and peculiarly connected with that of Glaſgow by means of the canal, which affords an eaſy, expeditious, and cheap communication with that city, and muſt neceſſarily feel any conſiderable variation in the price of corn there. In the Falkirk market, the price of wheat (in which article the principal advance has taken place) has not only fluctuated much leſs, but has been uniformly below that of Haddington, in a degree much greater than ever before was known. Conſidering our ready communication by the canal, how could this have happened, were it true, as ſtated, that the weſtern diſtricts had felt in a peculiar or partial way the influence of the corn-bill? If this bill has had any conſiderable effect at all, which I believe few people who know much of theſe matters think it has, it certainly does not appear in any thing like a local or partial riſe in the weſtern markets.

'But it is well known how ſenſibly alive theſe gentlemen are to every thing that might tend in any degree to trench on their exorbitant and extravagant profits, which their ſplendid manner of living emphatically proclaims to the world. They are ſufficiently well acquainted

quainted with their own buſineſs to know, that any riſe in the rate of labour (and this is what they dread) may be attended with a diminution of their profits. This is the true ſecret of all their meetings, which are in the true monopolizing ſpirit that has ever characteriſed that claſs of the community.'

Letter from a Gentleman near Perth, January 23.

'With us, the grain crop 1804 turns out ſomething like an average; and it ſeems more than probable that the recent high prices were ſolely occaſioned by a failure of crop in the ſouthern diſtricts of the Iſland. Owing to the uncommon demand at an early ſtage, and with prices above par, a quantity of grain, greater than common, could not fail to be drawn from the growers. In fact, a proportion exceeding ordinary ſales has already been marketed; and many ſtack-yards at Martinmas had aſſumed their uſual Candlemas appearance.

'The regulations of laſt Seſſion reſpecting the import and export of grain, have been aſſigned as the cauſe of the late high prices; and ſtrings of reſolutions have iſſued from the *Perth Shoemakers' Hall*, and other places, *demonſtrating* the neceſſity of amending the corn laws. Without troubling you with obſervations on the proceedings of theſe wiſe men, becauſe ſuch are directed againſt a meaſure, which, ſo far as connected with export has not operated, nor probably will not ſoon operate; I would entreat that a fair, well-trimmed *thraſhing machine* be ſent to the foreſaid hall, ſo as the members may be enabled to explain and amend the corn laws in a ſatisfactory manner. I am free to ſay, that neither horſe power, nor water motion, will be needed in working ſuch a machine; for the blaſts of oratory alone will be a ſufficient impelling power to give every requiſite velocity.

'That an alteration was neceſſary of the rates at which importation could be made at the low duties, will hardly be diſputed by any perſon of reflection, or who poſſeſſes the ſmalleſt ſhare of candour and information. Had foreign grain been receivable on the old terms, and prices remained in the home market like thoſe which formerly prevailed when the country was differently circumſtanced, how could the increaſed value of labour and the additional taxes have been paid by farmers? It is conſiſtent with my knowledge, that many needed a reward from crop 1804, to make up the loſſes ſuſtained from the two preceding ones, when corn was, in many inſtances, ſold below prime coſt.

'The weather, during the quarter, has been variable, but, on the whole, very favourable to the *out-door* operations of huſbandry. Stock have been regularly well ſupplied with good turnips; and it was a lucky circumſtance that this uſeful root improved ſo much in the autumn months; for otherways, from the general inferior quality of our ſtraw, the cattle ſtock would have been in a low condition when the ſpring ſeaſon arrived.'

Morayſhire

Morayſhire Quarterly Report.

We have in this county met with little interruption from the weather to our field labour, which is very forward. The uſual quantity of wheat is ſown, and looking well.

'The quality of our grain is remarkably good, the quantity abundant. Wheat continues, with ready ſale, at 35s.; Barley pretty current, at 22s. 6d. to 25s. *per* boll; and Oats, at 18s. to 20s. *per* five firlots.

'Many circumſtances combined to prevent our farmers from availing themſelves of an accidental ſtart in prices at this early ſeaſon. Bad harbours, a remote ſituation, the great uncertainty of making a paſſage, and our coaſting veſſels laid up during the winter,—theſe are a few of the cauſes; to which may be added, the parcelling out of land into ſmall farms, and the want of encloſures obliging us to keep an extra number of work cattle, conſequently to huſband our fodder, and thraſh only as it is wanted for their ſuſtenance; while the dry foil of this county is often unproductive in this reſpect. I ſaw more ſtraw, laſt Auguſt, in *one* Eaſt-Lothian farm yard, than could have been at that period collected in all this county. This ſeaſon, it is, however very different: we have great abundance. The ſtack-yards hold out remarkably well; and we can ſpare an unuſual quantity of very fine grain.

Turnips are alſo good; and dealers will, in the ſpring, find ſome excellent parcels of well wintered ſtots, in high condition for graſs. To this deſcription of ſtock our farmers now give the greater part of their turnip crops, the demand for ſtall-fed cattle being very inſignificant and uncertain. It is of importance to mention, that dealers have now a very great facility in carrying cattle out of this county, in conſequence of the bridge over Spey being completed. Beef and Mutton, in our market, ſell at 6d. *per* lib. Hay is plenty at 8d. *per* ſtone of 20 lib. Amſterdam.—*Jan.* 23.

Aberdeenſhire Quarterly Report.

THE weather, for three months paſt, has been uncommonly open for the ſeaſon, and little interruption given to field work. Turnips have been got from the fields with eaſe and facility. Even in the inland ſituations, feeding of cattle has been more a pleaſure than a drudgery, little ſtoring up of this root being practiſed in the county. The market for cattle has kept very ſteady; and the ſtock on hand is rather full than otherwiſe. The crop, under the flails, turns out very productive, and of very fine quality. About the end of November, prices for grain got up ſuddenly, till bear came to 25s. and 26s. per boll, and oats from 18s. to 21s.; but theſe prices were not ſupported above two weeks. They wore down till bear came to 22s. and 24s. per boll, and oats from 16s. to 18s.; at which, or thereby, they have continued ever ſince. There has been no backwardneſs amongſt the farmers to ſell at the prices offered, although no inducement of a high price will prevail on almoſt

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any of them to thraſh out, at this ſeaſon, one boll above their daily demand. The reaſon is, that a great value is laid on the ſtraw, ſtock being the firſt object with the farmer in this county. To find graſs for a full ſupply of cattle in ſummer, and provender, that is, hay, turnip and fodder for them in winter, may be ſaid to be the *primum mobile* of all the operations throughout the year. To attain this, the land, whether good or bad, receives a ſummer-dreſſing either for turnip or fallow. It is dunged or limed—generally both. With the firſt crop thereafter, which is either bear or oats, graſs ſeeds are ſown. We underſtand nothing about the four-courſe ſhift, or five-courſe either, ſo ſucceſsfully practiſed, by many, in more favourable ſituations. Very little of our ſoil would bear ſuch management; but, when laid down to graſs in decent order, we know that it will ſupport more cattle, feed them well, and continue good paſture five or ſix years, or longer, if it can be ſpared. After this, it is broke up for oats, two crops of which, on ordinary ſoils, make another dreſſing neceſſary. Sometimes, on the beſt land, three crops are taken; that is, one of oats, one of bear, and a third of oats. This ſyſtem of management, to thoſe who are accuſtomed to white and green crops alternately, will no doubt appear very unaccountable, and bad huſbandry. But if it is taken into account, that the ſoil is not capable of producing beans, that even peas are a crop which are ſometimes loſt altogether, although often ſubſtituted in the place of ſummer fallow, it may not appear ſo ſurpriſing that graſs ſhould be ſubſtituted in place of alternate white and green crops, and that a greater degree of reſt ſhould be given to the land. From the number of cattle kept, ſummer and winter, under this management, moſtly reared, partly fattened, the farmer looks more for his ſupport, or profit rather, than from grain, the cultivation of which injures the ſoil, and brings on a heavy additional expence. Owing to the above ſyſtem of management, which, with ſome little variation, is applicable to the counties of Aberdeen and Banff, it will appear that much grain cannot go early to market from theſe diſtricts; and though, on the whole, we will have a conſiderable quantity to ſpare, yet little has as yet been exported.—— *Jan.* 23.

Letter from Galloway, January 25.

'THE demand for grain, this year, in Galloway, has been great. Oats, weighing 36 lib. per buſhel, have ſold at 30s. and 31s.; potato oats, weighing 42 and 43 lib., at 40s.; and bear from 50s. to 60s.; all per Galloway boll of 12 buſhels. Of late a conſiderable fall has taken place, and prices are now from 4s. to 5s. per boll reduced. Wheat lately brought 9s. and 10s. per buſhel; but little of this grain, or of beans, is cultivated in this diſtrict.

'At the cloſe of our cattle markets, the demand for *winterers* was pretty good, although at reduced prices. There are not many fat cattle here, the demand for ſuch not being great. At Stranraer, beef is ſelling

t from 4½d. to 5½d. per lib. avoirdupois; Mutton about a half
· cheaper.

The weather has been very favourable this winter, and farm labour advanced. We had ſome froſt in December, but no ſnow till the current, when a pretty heavy fall took place. The froſt, for two paſt, has alſo been ſevere. As the uſual rains have been miſſed eaſon, the feeding of cattle with turnips in the field has been at d with more advantage than ordinarily happens.'

Extract of a Letter from the Diſtrict of Carrick, 25th January.

With the exception of a few weeks, or rather days, the weather g this quarter, has been favourable for the purpoſes of agriculture r have been ſeveral weeks of mild froſt, which greatly benefited the ys, while it was not ſo violent as to injure the new ſown wheat; t is, of all others, that ſort of weather which, at this ſeaſon o ·ear, is moſt deſirable to the graziers, of whom there is a conſider proportion in this part of Ayrſhire. The effects of the diverſity ſt ſummer and harveſt cannot yet be fully aſcertained; though, if ere to judge from the early and ſudden riſe in the price of grain ediately after the concluſion of harveſt, and before the corn bill had to operate, we muſt conclude that the laſt crop is not conſidered ·ing very abundant. Bear and barley roſe to 2l. 2s. and 2l. 10s. quarter; Wheat from 9s. to 10s. the Wincheſter buſhel. Oat-meal ·ontinued ſtationary during the winter, in the market of Ayr, at the peck. The prices of lean, or wintering cattle, advanced a little t Martinmas; but the graziers complain that the price of fat cattle ıt in proportion to what they are ſold at in the ſhambles. It would ·ar, from the prices quoted in the newſpapers, that butcher-meat high to the conſumer as when the grazier was receiving near 2 ·ent. more than at preſent.

It would be a deſireable thing, to many of your readers, if you rters would ſpecify, more accurately than they generally do, what ·ure and weight they mean, when they mention the price or quantity ther crop or meat. It is well known that what is called a *boll* differ ɔft in every different county in Scotland; and it is the ſame thing ı regard to weights. In ſome places, the pound is 16 oz.; in other ; in others 22¼; in others 24 oz. When it is ſaid that grain is ſ h the boll, and meat is ſo much the pound, how is a plain farmer t w what the real price is, unleſs the relative weights and meaſures ar ·ified?—The Wincheſter buſhel, and the Engliſh pound, are known ·ery body; and I would therefore think you would do an eſſentia ce to your numerous readers, if you would recommend to you ·ſpondents, to uſe invariably theſe ſtandards. There is no par ·he information contained in the Farmer's Magazine of mor uſe to all deſcriptions of people than the Agricultural reports they ought therefore to be ſtated with clearneſs and preciſion; ſ

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that the country gentleman, the ordinary farmer, the merchant, and the mechanic, may know what the ſtate of the country really is, as well as the corn-dealer and the fleſher. I am diſpoſed to think, that a ſingle hint from you to your correſpondents will in future, rectify this. —25. *Jan.*

Mid-Lothian Quarterly Report.

THE winter has hitherto been extremely mild; vegetation, as yet, has met with no check; the young graſſes never looked better; and ploughing, of courſe, is well advanced.

The various grain crops are turning out nearly as ſtated in laſt report. From the briſk demand, and prices offered, during the month of November, and firſt week of December, moſt farmers were induced to thraſh out a greater proportion of wheat and barley than uſual at ſo early a period of the ſeaſon; indeed, ſome of them have carried the matter ſo far as to thraſh out their all. But, notwithſtanding this, few of the bakers have much wheat on hand; neither have the barley merchants any thing like a full ſtock, with the exception of a few of the great diſtillers. Hence, it is thought that the preſent glut in the market for theſe grains will ſoon be at an end. Potatoes and oats, however, are plentiful and cheap. The former are ſelling at 8d. per peck of 28 lib. Amſterdam weight; and oat meal at 18s. and 18s. 6d. per boll of 140 lib. avoirdupois.

The butcher markets continue fully ſupplied. Turnip cattle never throve better than in the preſent open ſeaſon. Beef and mutton ſell at about 9s. per ſtone Amſterdam, ſinking the offal, a little more, or leſs, according to the quality and ſupply at market.

The country is again getting full of live ſtock; hence, any ſets of paſture graſs that have lately taken place, have been at a conſiderable advance.—*January 25th.*

Northern Quarterly Report.

THIS northern diſtrict has ſeldom experienced a more favourable winter; for we have had little ſnow, whilſt the froſt has been ſo gentle as ſcarcely to ſtop the ploughs a ſingle day;—circumſtances that rarely happen in this high latitude, and which, if ſucceeded by a decent ſpring ſeaſon, will make the work of that period go briſkly forward.

In the county of Inverneſs, the crop turns out fully equal to expectation; and, though that diſtrict ſeldom ſupplies itſelf, it is highly probable that none will be wanted this year. In Caithneſs the crop is better than an average, both as to quantity and quality. In Roſsſhire it is alſo good; and a very conſiderable quantity will be exported from both diſtricts. Bear has had a briſk demand at 20s. and 22s.; Barley at 24s. and 26s.; and oats at 16s. and 17s. 6d.; all *per* boll of four firlots. The little wheat raiſed, brought from 35s. to 37s. 6d.; but the greateſt part of diſpoſable grain is already in the hands of the merchants.

Provender,

'Provender, for ſtock of every ſort, is abundant; and the butcher market at Inverneſs is well ſupplied with excellent *graſs* mutton, at 4d. and 4½d. per lib. Beef ſells at 6d.; but if prices do not ſoon advance, turnip fed ſheep and cattle will pay very little for their *keep* this ſeaſon. The turnip crop is exceeding good, and hitherto has ſtood the winter well.——*Jan. 25th.*

Berwickſhire Quarterly Report.

THE weather, ſince laſt report, has been extremely propitious to the operations of the ſeaſon. Wheat ſowing was completed under favourable circumſtances, and the young plants have a very promiſing aſpect. Turnip ſtock has thriven well, having had no froſt, of any continuance, ſo ſevere as to prevent ſheep from taking a full feed. Ploughing is in a forward ſtate; and any ſnow we have had, has been ſo moderate, that paſturage has never been quite ſhut up.

Corn advanced conſiderably in price during the firſt of this quarter, particularly wheat, which for ſome time occaſioned the thraſhing of that grain in preference to others; but, ſince the middle of December, prices have declined a little.

Market prices at Berwick, Saturday, January 26th.—Wheat from 60s. to 66s.; Barley from 26s. to 28s.; Oats from 17s. to 22s.; all per boll of ſix Wincheſter buſhels.

At Dunſe Martinmas fair, cattle, in good condition for turnip, met with a ready ſale, and brought good prices. There was alſo a conſiderable demand for lean ſtock; but, the markets being fully ſupplied, prices were a good deal below thoſe of the preceding year.——*Jan. 26.*

Fifeſhire Quarterly Report.

VERY favourable weather for every deſcription of field operations has prevailed in this diſtrict for three months paſt, and, in conſequence, labour is far advanced. We have had little ſnow; not much froſt: and, owing to theſe fortunate circumſtances, turnips have been hitherto conſumed with advantage. Thoſe that remain in the field are equally freſh and good as in the beginning of the ſeaſon.

The grain crop, of all kinds, has turned out fully better than expected; and ſo briſk a demand prevailed a long time for wheat and barley, that almoſt the whole of theſe grains have been thraſhed out and ſo The diſtillers were the only merchants for barley, as barley meal was little in demand, and ſold at no more than 9d. a. 9½d. per peck. Peas meal is a trifle higher; but moſt of this article remains in the hand of the farmer.

Oats were an abundant crop, and meal exceedingly well. Potato oats are in much repute, and ſell about 2s. per boll higher than other varieties. The bulk of the oat crop is ſtill in the ſtack-yard; and there is not any reaſon to apprehend that oat meal will riſe above 20s. or 21s. per boll through the ſeaſon.

The wages of labourers is 18d. per day, and abundance of work for all who offer. Manufacturers are alſo in full employment; and as all ſorts of proviſions are plentiful, and, compared with the value of money, not over dear, there is no room for complaint with any claſs of ſociety. The demand for fat cattle is dull; and butcher meat ſells at 8½d. to 9d. per lib. of 22 ounces.——*Jan. 28th.*

Letter from Glaſgow, Jan. 29.

'The high price of grain, particularly wheat, occaſioned ſo much to be thraſhed out early in the ſeaſon, that we are of opinion the greater part of the wheats in the neighbourhood is not only brought to market, but alſo conſumed. From the ſcanty importation we have had of that grain, our ſtock on hand is but ſmall; and were our conſumpt as great as uſual, and to continue ſo, the quantity on hand would certainly be much exhauſted before we could have any new ſupplies; but the large ſtock we have of excellent oat meal and potatoes will leſſen the conſumpt of that grain. We are at preſent getting partial ſupplies of oats and barley from Ireland and the ſouth of Scotland: but from the low price of theſe articles in our market, our merchants will be poorly paid, unleſs either prices get higher here, or fall in other places. Our market is extremely dull for all kinds of grain at the following prices:

'State of Glaſgow Markets, Jan. 29.

Dantzic wheat -	50s. to 51s.	per boll Linlithgow meaſure.
Scotch do. -	38s. — 45s.	
Canada do. -	45s. — 50s.	per 240 lib. Engliſh.
Iriſh barley -	33s. — 35s.	per 320 do. do.
Scotch do. -	32s. — 34s.	Stirling meaſure.
Beans and peas	21s. — 23s.	
Engliſh potato oats	24s. — 25s.	
Scotch do. do.	23s. — 24s.	Renfrewſhire meaſure.
Do. ſmall do.	17s. — 20s.	
Oat meal -	20s. 6d. — 22s.	per boll of 140 lib.'

Eaſt-Lothian Quarterly Report.

'The weather, on the whole, has been mild and temperate through the laſt quarter: a few days of froſt in December ſtopped the plough; but, with this exception, no other interruption has been received. The latter end of January was froſty, accompanied with ſhowers of ſnow, but not ſo exceſſive as to retard field work in the lower diſtricts of the county.

The winter ſowing of wheat was, in moſt caſes, finiſhed before the middle of November; though, on the coaſt ſide, many fields were ſown afterwards, it being a received opinion, that an early ſeed time *in ſuch ſituations* is not calculated to benefit the crop: and it deſerves notice, that a greater extent of ground is already occupied with wheat, than ever

ever known in this county. The practice is beneficial, and that is sufficient to overcome every one of the antiquated notions formerly entertained respecting the injury done from sowing this grain extensively. In fact, the farms on which it is most extensively cultivated, are, in nine cases out of ten, in the best order, and under the most approved management.

Immediately after last report, the wheat and barley markets rapidly advanced, though the quantities presented for sale, at least of the first grain, were much larger than those of any former season. Prices rose to 47s. and 48s. per Linlithgow boll for quantities, and even to 50s. and 52s. in the ready-money market. This rise was occasioned by large orders from England, but did not last for more than two weeks, when a gradual fall took place, till the average was reduced to 40s. and 41s., at which prices sales in the middle of January were commonly made. The two last markets have assumed a different complexion, and prices have mounted up to their former level. Barley hovered up and down like wheat. At one time, the price was 34s. and 35s. per boll of six bushels; but it afterwards declined to 27s. and 28s., though now a little higher. Many oats being used by the distillers, lessened the demand for barley, and rendered the sale uniformly heavy, notwithstanding of the small quantity cultivated. Oats and peas have generally met with a dull sale: both these grains turn out well; whilst the demand for them from other quarters is not considerable.

The turnip crop yields a greater quantity of sound, fresh food, than known for many years; and the flock fed upon it are generally in a thriving state. The demand for fat cattle and sheep is not brisk; and the prices, compared with those sought in the shambles, are apparently low. Fat cattle cannot be reported as above 8s. 6d. per stone Amsterdam, sinking offal; whilst beef is 7d. and 7½d. per lib; Mutton rather lower.

An extraordinary large ox, bred by the late Colonel Hamilton at Pencaitland, and latterly fed by Mr William Aitchison distiller at St Clement's Wells, in this county, was sold by public roup, on Monday last, at no less a sum than 97l. 10s.; which price, it is presumed, much exceeds that of any ox hitherto bred in Scotland. The purchaser was Mr John Cowan flesher in Edinburgh.

Prices of grain this day at Haddington.—Wheat, of decent quality, weighing from 63 to 65 lib. per firlot, 48s. to 51s. Barley, weighing from 77 to 80 lib. per firlot, 29s. to 31s. Potato oats 20s. to 21s. Peas and Beans 17s. to 19s.; all per Linlithgow standard measure.——*Feb.* 1.

Haddington, February 8.

Our market this day had a full supply of grain; and sales, except for oats, were made at reduced prices. Wheat was at least 4s. per boll lower than this day se'en-night; Barley about one shilling; Beans and Peas much the same; Oats a trifle higher, and sold quickly. The wholesale merchants, who are the life and soul of the market, were shy of dealing unless on reduced terms.

ENGLAND.

Letter from a Gentleman in the County of Kent. Jan. 15.

'The weather, during the firſt part of the winter, excepting the end of December, being free from froſt or ſnow, great progreſs was made with the plough in turning in the wheat ſtubbles and other lands for the enſuing ſpring crops of barley and oats; and the hard open froſt of the laſt month has been very convenient for carting out manure on the barley ſtubble lands for beans. Every kind of crop in this county turns out poorly, and thraſhes very tough; the common price of thraſhing wheat, where the crops are beſt, is from 4s. 6d. to 5s. per quarter of eight Wincheſter buſhels; but in ſome pariſhes it is ſo bad, that it can only be done by the day, and coſts, in that manner, from 8s. to 16s. per quarter: Barley and beans 2s. 6d.; Oats 2s.; daily labour is 2s. 6d., and good workmen are very ſcarce. Turnips have grown much during the autumn; ſo that many late-ſown crops have turned out much better than was expected: the crop of this root, in general, is pretty good; which, with plenty of hay and after graſs in the beginning of the winter, made a great demand for lean Welch and Scotch cattle; but immenſe numbers having, by the high prices, been drawn thither, the markets became overſtocked, and prices, in conſequence, fell conſiderably. Beef and Mutton have been plentiful and cheap; but prices are now increaſing. The demand for the Navy and Army, in this county, occaſions a great conſumption, which is ſupplied chiefly from Smithfield market. We had a good ſtock of old wheat on hand; but, from the bad appearance of the laſt growth, the alarm of ſcarcity occaſioned the price in the month of November to riſe up to 128s. per quarter, and ſome more; but by a tolerable ſupply at the London market the price is now much reduced. Barley has been very unſteady in price; it is now worth about 50s., and Beans the ſame, per quarter; Peas 48s. to 56s., and Oats 30s. to 34s. Hops are a great article of culture in this county; they have been very plentiful and cheap this year; the price ſo low, that many of us are loſing much by our plantations; and we are in conſequence reducing them faſt. In the beginning of the year, good Hops were ſold as low as 4l. per cwt.; they are now got up to about 5l.'

Letter from a Farmer in the neighbourhood of London. Jan. 21.

'When I took up my reſidence in this diſtrict (Middleſex), I was aſtoniſhed to ſee how different its agriculture was conducted from what was practiſed in Eſſex and other counties with which I had been connected. My firſt attempt was to remove the large Hertfordſhire plough drawn

drawn by three and four horſes in length, which will not keep one yard in a direct line, unleſs held ſteady by a ſtrong man, who always has a boy acting as driver. In the place of this large and unwieldy implement, I introduced Eſſex ploughs, wrought by horſes abreaſt; and with theſe I have ploughed my clover ſtubbles. The prejudice is however ſtrong againſt them; and this has not been leſſened by my bringing ſervants from Eſſex, who were accuſtomed to plough without the aſſiſtance of a driver.

'I land-ditched a field of 16 acres with a mole-plough, and find that the practice anſwers well upon loamy ſoils, though prejudice was here as active againſt me as in the other caſe. I tried, firſt of all, to have the furrows made deep by the plough, but could not get it done deeper than ſix inches. This, however, did not diſhearten me. I ſet the ſhare of the plough very low, and was thereby enabled to make a good drain of 3 inches by 4 inches in diameter, 17 inches below the ſurface; after which they were cut acroſs with the ſpade, and run exceedingly well.

'In this county we have farmers of every deſcription, and the *caſt* is much more diverſified than in other places. The land is nearly all in the hands of Bankers, Eaſt and Weſt India Merchants, Cockneys, Bakers, Brewers, Officers, and in ſhort almoſt every character, except the real farmer. It is owing to this circumſtance, in a great meaſure, that labour is ſo exceſſively dear; for ſuch people will give any price for cutting corn and hay, which muſt be imitated by the induſtrious farmer, or he muſt run the riſk of ruining his crop by delaying his work till their's is harveſted.

'The wheats in Middleſex, though partially blighted, were not ſo materially injured as in Eſſex. There were great ſupplies of old grain on hand at the end of autumn, which have been regularly brought forward; and I do not think that more of the laſt crop is as yet thraſhed out, than had taken place at this time twelve months with the crop then in hand.

'Labour of all kinds is exceedingly dear;—12s. 14s. and 18s. per week is commonly given; and carpenters and other mechanics will earn 30s.'

Norfolk Quarterly Report.

THE late corn act has received, from almoſt every corner of the united kingdoms, a conſiderable degree of acrimonious examination; and in this county, where the idea of a petition to Parliament was firſt ſtarted, it has perhaps excited a ſtronger ſpirit of animadverſion, and occaſioned warmer debates, than in any other quarter. Profeſſional avocations will operate, in all ſituations, with nearly equal force; but here, private paſſions have mingled in the diſpute, and many have ranged themſelves as partizans, on the one ſide or other, as much from eſteem or averſion to the friends or oppoſers of the meaſure, as from attention to the real merits of the caſe. I conceive, therefore, that a

few obſervations upon this act will not inaptly precede a ſtatement of the progreſs made in thraſhing the crop of the late harveſt, and of the proportion ſtill to be expected from it in the market.

Unfortunately for the popular character of the bill, the price of grain advanced rapidly immediately on its paſſing. The oppoſers of the meaſure did not ſuffer an argument, apparently ſo favourable to their cauſe, to ſlip through their fingers, without applying it in proof of the pernicious conſequence which the act muſt, they contended, produce to the general intereſt of the community at large, thus ſacrificed to the ſelfiſh views of a particular claſs of men, forming comparatively but a ſmall portion of the aggregate population of the kingdom. 'I would riſk my exiſtence' (ſays one of its impugners) 'on the diminution in the price of grain following on the removal of this pernicious meaſure.' The advocates for the meaſure, with whom I moſt cordially agree in ſentiment, obſerve, that not to the act, but to the blight or mildew which, about the time that act received the Royal aſſent, manifeſted itſelf to a moſt alarming degree in the wheat crop, and to a poſitive conviction, at the ſame time, that the barley crop was moſt materially injured, are we to attribute this advance: For, even allowing a ſlight degree of alarm to have exiſted in the firſt inſtance, that alarm muſt long ſince have ſubſided; yet the price of corn continues high, and ſtill appears to be advancing. And, in fact, how can the act have produced theſe pernicious conſequences (as they are called) with which it is charged? It has neither allowed exportation nor prevented importation: On the contrary, I ſhould conceive it muſt have acted, in the latter caſe, as a ſtimulant, and tended conſiderably to increaſe the quantity brought from abroad. But, ſays the gentleman before alluded to, and who, it muſt be confeſſed, has attacked the meaſure with keener ſatire, if not with more convincing arguments, than any of his party, 'How can you judge of a crop after harveſt, when it is houſed and ſtacked, and no poſitive evidence can be obtained?' 'A perſon,' (he adds) 'would be as much in the dark, in gueſſing at the quantity of corn on a man's premiſes, by an external ſurvey of his ſtacks and barns, as he would be in eſtimating a bundle of bank notes enveloped in a pocket-book.' But ſurely any perſon, who has for many years been in the habit of obſerving the fields and ſtack-yards, and who this year took a ſurvey of them immediately after harveſt, muſt have been convinced that they did not contain two thirds of their uſual quantity: and if at the ſame time he learns, to poſitive conviction, that the barns are equally deficient of their uſual contents, becauſe it was deemed dangerous to horſe-tread them, ſo much clover having got up amongſt the thin barleys, as to occaſion great danger of heating, if cloſely preſſed—ſurely, though he could not aſcertain the produce to a peck per acre, yet he might, without ſubjecting himſelf to the imputation of raſhneſs, venture to aſſert, that it would fall very far ſhort of an average crop.

Something was certainly required to reanimate the ſpirit of the agriculturiſt, which, in conſequence of his loſſes in the two preceding years, began

began to grow languid and inert. In the neighbourhood of Norwich, when the farmers carried their corn to the merchant, it was almoſt an invariable cuſtom, in good times, to take back from the inns a load of manure, at the price of 5s.; but, in theſe unfortunate years, the ſame men could ſcarcely be prevailed upon to take it away, though offered as a *douceur* for their trouble. Nor can this circumſtance be a ſubject of rational ſurpriſe; for, however meritorious it may be to produce two blades of graſs or grain where only one grew before, (and this certainly is moſt highly meritorious), yet few will prove ſuch diſintereſted philanthropiſts as to attempt it, in any degree adequate to the general advantage of the community, without being ſtimulated by the hope of a remuneration for their toil and expence. Repeal the act to-morrow, and I am perſuaded moſt firmly, that it will not occaſion, on the Monday following, the ſlighteſt alteration in Mark-Lane; that the market will continue equally ſteady, as if no ſuch event had taken place; and that barley will even look up. The progreſs already made in thraſhing out the barley crop has, at this ſeaſon, been unprecedentedly rapid. Harveſt ended early; high prices; the capital crop of turnips, which made ſtraw, &c. of ſlighter conſideration than uſual, have each held out a powerful inducement to an early and vigorous application of the flail and the machine. There is another conſideration too, which muſt be taken into the eſtimate. On a conſiderable quantity of good land, the turnip crop of laſt year completely failed; and, on theſe lands, where barley would have been the crop had the turnips ſucceeded, was ſown wheat. Here it is natural to obſerve, that the circumſtance which diminiſhed the quantity of barley, would increaſe the produce in wheat: but, granting this to be the caſe, it is to be remembered that this crop proved, almoſt in every inſtance, even more defective than the general produce, both in quantity and quality, not averaging more than 1½ quarters per acre. I do not however conſider the wheat by any means ſo nearly exhauſted as the barley. Farmers entertained a pretty general opinion that the former was moſt likely to maintain its value; and the price, at the beginning of the ſeaſon, was not ſuch as to tempt them to bring it to market, and therefore a greater reſerve has been made of it. Peas were a full crop. Oats much more productive than barley. As to ſheep, feeders complain greatly of their late markets; fat South-Down mutton having been ſold in Smithfield for 4d., and even ſo low as 3d. per lib.

I may add one ſtrong corroborating proof of a deficient crop and early thraſhing—the quantity of labourers now conſtantly applying for employment; who, as they muſt have work provided for them, or be maintained by the pariſh, are ſent to work on the highways; though their labour, at this ſeaſon, tends very little to their amendment. Notwithſtanding, therefore, the high prices of grain, I do not conſider this as a very profitable year to the farmers in general. They have, at the higheſt eſtimate, not more than two thirds of a crop; and that preyed upon by Property, and other Taxes—by an immenſely burdenſome poors' rate, increaſed beyond example—by ſo many labourers being paid out

of it, for doing comparatively nothing—and by an allowance of eightpence per head to every individual of a family conſiſting of more than four perſons, and which allowance muſt be increaſed in proportion to the increaſe in the price of wheat. Theſe united claims upon their profits will, I fear, leave no conſiderable general balance in their favour at the foot of their accounts.——*January 24th.*

Northumberland Quarterly Report.

FROM the date of the laſt report, the weather was generally freſh to the 17th December, when we had ſome froſt and ſnow. On the 19th the barometer was at 30.4 inches, the higheſt known during twenty years obſervations. This froſt continued till the 3d January; ſince which, we have had alternately freſh and froſt with ſome ſnow. On the whole, it has been very favourable for getting forward the farming operations neceſſary at this ſeaſon. The lands for ſummer-fallows are all ploughed, and thoſe for ſpring-ſowing are in great forwardneſs.

The Turnip crops, ſtated in laſt report to be remarkably good, have even exceeded expectation; having hitherto received no injury from froſt, are likely to become very plentiful; of courſe, conſiderably lowered in price.

The autumn ſown wheats are looking very healthy. The greateſt part of the ſpring wheat is yet to ſow; a few patches were ſown in the ſecond week of January.

The ſamples of laſt year's wheat are in general very indifferent; and univerſal complaints of diſappointment in failure of produce, or quantity per ſtook. Hitherto, our markets have been pretty well ſupplied with old wheat; but little of this is now left. Of the produce of other kinds of grain, there is no reaſon to complain: the quantity and quality of them may be eſtimated at a fair average.

Our corn markets were higher a few weeks ſince: but a drop is generally expected at this ſeaſon, as farmers of all deſcriptions are thraſhing for ſtraw; and prices are ſuch as to induce every one to ſell, as faſt as it is ready. The preſent prices per Wincheſter buſhel are, Wheat 10s. to 10s. 6d.; Barley 4s. 6d. to 5s.; Oats, 3s. 4d. to 3s. 6d.; Peas 4s. 6d.

The markets for fat are getting up. Beef from 7s. to 7s. 8d. per ſtone of 14 lib. ſink; Mutton from 6½d. to 7½d. per lib. ſink.——*Jan. 25.*

Yorkſhire Quarterly Report.

So far as the thraſhing of wheat has proceeded, the reſult fully confirms the preſage of the autumnal report, on the probable deficiency of the generality of that crop throughout this part of the iſland, as the return is actually much leſs than was then expected. High as the price of grain conſequently is, it is ſtill perhaps much too low for the ſtate of the produce and ſtock on hand, eſpecially if we keep importation out of view, which no doubt has brought conſiderable aids to the ſupply of London, and ſome other parts of the country. Our markets have hitherto been better ſupplied than was probable at one time.

time. The prices are conſidered high, and doubtleſs have forced muc into ſale, which, in the end, may be no advantage to the conſumer, economy be not ſtrictly attended to.

Notwithſtanding the large foreign ſupplies, at an immenſe loſs to th community, (particularly when high prices prevail, the general balanc of the corn trade being againſt us), very probably the ſtock wheat will fall much ſhort of the whole year's conſumption. Barley though not a bad crop, is alſo at a high price: much of it is ſuppoſe to be uſed for bread in the midland and other counties.

While ſuch notorious diſcouragements to the production of grain, the tithes, &c. remain unmitigated, a heavy reſponſibility reſts ſom where, which may one day come to be more imperiouſly inquired into; if external circumſtances continue for ever to engroſs the attention, the utter neglect of domeſtic concerns of much greater pith and m ment, we may ſoon exhibit a picture, of which even our own native oa now and then offers a faint emblem;—when that king of the foreſt happe to ſhow the ſpecimen of a tree of nobleſt ſize and ſtature, apparentl flouriſhing in ſurface, and beauty of foliage, yet, when tried, is foun decayed at the heart. The beſt wheat is at 14s.; Barley 7s.; Oa 4s. 6d.; Beans 6s. 6d. per buſhel of Wincheſter. Potatoes about 3 per boll upheaped.

The growing wheats, in general, look worſe than uſual; but th ſtate of the weather has of late weeks been ſo variable, with a conſta alternation of ſnow, rain, froſt, and thaw, that it would be wonderf if they looked well. Leſs ground is ſown with wheat than commo in this diſtrict.

Notwithſtanding the very unfavourable weather, the turnips have r ſiſted the froſt better than uſual, and are found, nouriſhing, and pr ductive; the price about 4l. per acre for the beſt; Hay about 4l. p ton. Clovers and other ſeeds continue for the greateſt part to be ve promiſing.

Both fat and lean cattle and ſheep continue at lower prices; the la ter, in particular, ſometimes ſo low, at our late markets, as to be rath diſcouraging. The want of the uſual demand from the greater man facturing towns, is aſſigned by ſome as the cauſe. The beſt Be 7d.; Mutton 6d.; Veal 7½d.; Pork 6d. per lib. avoirdupois. Th wages of ſervants and labourers in huſbandry, &c. &c. are very hig —*Jan.* 25.

Letter from London, January 28th.

'Since the date of my laſt letter (October 30th) prices of whe and other grain have been very unſteady, and now ſtand much high than they did at that period. The great advance which took place wheat in the beginning of November, could not be owing to any in mediate ſcarcity in this market, as the ſupply was abundant, even the day when our prices roſe to the higheſt, (the 12th of Novembe when wheat ſold at 136s. per quarter), and the quantity of flour town had been great from the commencement of harveſt. The cau

of ſo great a riſe I believe to have been owing to the general opinion which was then formed of the defectiveneſs of the wheat crop, both in quality and quantity, eſpecially in thoſe counties from whence we generally derive the beſt grain and the greateſt ſupplies. The quantity of wheat, however on ſale, both Britiſh and foreign, ſoon became ſo large, that the prices, for two or three weeks after the above period, kept regularly declining; and although this cauſed a proportionate fall in flour, ſtill the price of the latter article was ſo much above what it could be made for in many parts of the country, that large quantities have been received, not only from the northern coaſt, but from various parts of the interior, which has kept the London ſtock of flour very full. For ſome weeks, markets were very dull, and few ſales made, either of wheat or *flour*, even at the reduced price at which the country flour was offered. But, within theſe ten days paſt, the wheat market has conſiderably advanced, though the ſupplies from the coaſt, and flour from the interior, does not fall off; and large ſales have been made of both at advanced prices. There appears no adequate reaſon for this advance, but the conſideration of the time that muſt elapſe before importations can be made from abroad, and the probability that the late ſupplies from the country cannot be maintained. With reſpect to the great riſe on barley, (which at one time was ſold for 70s. per quarter), the quantity preſented for ſome weeks was ſmall, and not at all equal to the demands of the maltſters, who had then commenced working, but who, from this great advance, were ſoon obliged to ſtop. The high prices given, encouraged large ſhipments from the corn diſtricts, which, coming altogether, the fall was as rapid and great as the riſe had been, fine barley having fallen to 46s. per quarter. The ſupplies of beans and peas were alſo ſmall for ſome weeks, and prices conſiderably advanced; old beans being much wanted.

'The ſupply of oats has been good, and prices pretty ſteady, though now a little advanced. The conſumption being very great, it is probable that prices will not be much lower, except occaſionally on a large arrival from abroad. The ſeaſon is now coming on when graſs-ſeeds will be in requeſt: but although the maiden clovers have produced ſome fine ſeed, yet the general produce being materially defective, and our great reliance for additional ſupply being confined to Holland, it is the general opinion, that prices will advance as the ſeed-time approaches.

'The quantity of wheat at market this day not being great, and our neighbouring country markets appearing to fall off in their ſupplies, a good many buyers appeared, and the article experienced a farther advance. The current price of fine Dantzics was 126s. per quarter: for ſome ſuperfine ſamples more money was obtained, and other ſorts ſold dearer in proportion, as noted below. The barley trade, in general, revived to-day; and prices of the fineſt ſamples were two ſhillings per quarter dearer. In beans and peas we have no alteration. A good many oats have arrived ſince laſt Monday: however, the ſame prices were readily made, particularly for the finer ſorts.

'State

'State of London Markets, Monday, January 28.

'Wheat, new	65s. to 100s.	per quarter.
——— Fine Eſſex	115s.	
——— Old	70s. 105s.—116s.	
——— Fine White	124s.	
——— North Country, new	70s. 100s.—110s.	
Very fine higher.		
——— Foreign Red	80s. 95s.—105s.	
——— White Dantzic	100s. 120s.—126s.	
Black Wheat	65s.—85s.	
Rye	56s.—60s.	
Barley	44s. to 50s.	per quarter.
—— Fine	52s.—54s.	
Malt	82s.—88s.	
White Peas	48s.—52s.	
Fine Boilers	60s.	
Grey Peas	47s.—50s.	
New Small Beans	52s.—54s.	
Old ditto	54s.—56s.	
New Tick ditto	43s.—45s.	
Old ditto	48s.—52s.	
Oats, long feed	26s.—30s.	
—— Short Smalls or Frieſlands	32s. 34s.—35s.	
—— Polands	28s. 35s.—36s.	
—— Potato	35s. 37s.—38s.	
Fine Flour delivered to the Bakers	90s. 95s.—100s.	per ſack.
North Country Flour	80s.—88s.	
Red Clover Seed	60s.—112s.	per cwt.
White ditto	80s. 112s.—120s.	
Trefoil	20s. 30s.—42s.	
Rye Graſs	21s. 30s.—38s.	per quarter.
Tares	40s.—48s.	per do.
Hay	65s.—80s.	per load.
Straw, Wheat	36s.—42s.	per do.
Potatoes	40s.—80s.	per ton.
Beſt Kidney ditto	100s.—120s.	per do.'

By accounts ſince received, we are informed that the wheat market on 4th current was conſiderably depreſſed, large quantities having arrived in the river from the eaſtern and northern ports.

Letter from a Farmer in Wales. Jan 25.

'We had a continued froſt for three weeks before Chriſtmas, and were beginning to be afraid of the growing wheat, as it was without a covering of ſnow; but though the young plants look weakly, they do not as yet ſeem injured in other reſpects. Much will depend on the weather we have in ſpring; becauſe, if ſevere, theſe weak plants will be

be unable to live till more genial weather arrives, eſpecially as many fields were ſown at a late period of the ſeaſon.

'Laſt year's wheat crop falls ſhort even of what was expected at harveſt, and had it not been owing to the large ſtock of old grain on hand, I do not know what would have become of us. We have plenty of ſtraw to be ſure; but it yields little grain; and the quality and weight is generally complained of. Barley turns out better than originally ſuppoſed. Oats are alſo good. Prices at preſent are; for Wheat 30s. per buſhel of 168 lib.; Barley 48s. per quarter; Oats 24s. per ditto; and Beans 64s. to 65s. per ditto.

'We had no demand for cattle and ſheep of any conſequence this winter; of courſe prices are low, and many on hand. This want of ſale obliged farmers to thraſh out more than the uſual quantity of grain ſo as money might be got to anſwer their payments, which will have an effect on the grain markets afterwards. Turnips were an excellent crop, and have ſtood the winter well; but will be ſoon conſumed, owing to the large ſtock of cattle and ſheep that remain with us.'

Average Price of Corn p. *Quarter in Great Britain, for the Week ending January 19th.*

	Eng. & Wales.		Scotland.	
	s.	d.	s.	d.
Wheat	86	7	73	2
Rye	53	0	36	0
Barley	44	2	36	3
Oats	25	10	22	9
Beans	48	0	35	11
Peas	51	1	36	1
Oatmeal	21	3	19	9
Bigg	—	—	32	9

Price of Meat at Smithfield, excluſive of the Offal, which conſiſts of Head, Intrails and Hide, and is worth about 1d. per lib.—Per ſtone of 8 lib.

	Friday.				Monday.			
	s.	d.	s.	d.	s.	d.	s.	d.
Beef	4	6	5	4	4	0	5	0
Mutton	4	8	6	0	4	4	5	4
Veal	5	8	7	8	5	0	7	0
Pork	4	8	5	8	4	0	4	10

Newgate and Leadenhall.

	s.	d.	s.	d.		s.	d.	s.	d.
Veal	7	0	7	8	Beef in ſides	4	0	4	8
Pork	5	0	5	8	Ditto in lots	4	4	5	4
Mutton	4	0	4	8	Lamb	4	0	4	6

Paddington Market.

Hay per load 3l. 3s. to 4l. Straw 1l. 4s. to 1l. 6s.
Beaſts 109—Sheep 610—Pigs 24.

Tamworth

Tamworth Fair, on Monday January 21ſt, was well ſupplied with fat beaſts and ſheep. The beaſts, which were of heavy ſale, ſold from 6d. to 7d. per lib. finking the offal; and ſheep at about 7d. finking the offal.

Wakefield, January 25th. Our arrivals of grain continue ſmall, and wheat of ſuperior quality meets with ready ſale at an advance of 5s. per quarter; but little or no alteration in inferior ſamples. Oats of good quality are briſk of ſale at 6d. advance; inferior unſaleable. Barley, though more at market than laſt week, is further advanced full 2s. to 3s. per quarter. Beans ſcarce, and may be noted 2s. dearer.

LIVERPOOL METEOROLGY, 1804,

Continued from Vol. V. p. 505.

	Fall of Rain.		*Evaporation of Water.*	
	In.	Dec.	In.	Dec.
January and June incluſive -	12	66	11	40
July - - -	1	9	3	3
Auguſt - - -	2	35	3	0
September - - -	1	67	2	12
October - - -	5	90	1	75
November - - -	3	0	1	25
December - -	2	40	1	50
Total, as meaſured by G. J. Liverpool	29	88	24	32

POSTSCRIPT TO SCOTISH INTELLIGENCE.

Kincardineſhire Quarterly Report.

'We have enjoyed, as yet, a fine open winter. The weather has been variable, with ſevere gales of wind, moſtly from the ſouth and ſouth-weſt. Little ſnow has fallen, and the froſts have not continued for any length of time; which has allowed ploughing and other operations of huſbandry to be got very forward. Turnips keep very freſh and good, and appear little injured by the froſt. There has been little demand for fat cattle; they appear now to be in more requeſt. Our grain markets took a ſudden ſtart in November, and continued advancing for ſome weeks rapidly. Wheat reached from 50s. to 55s. per boll; Barley from 27s. to 30s.; Bear from 24s. to 26s.; Oats 20s.; but the prices declined again as faſt as they had riſen; and, for the laſt ſix weeks, not a boll could be ſold almoſt at any price. There appears now to be a little demand again for barley and bear, but at very reduced prices.

The graſs ſeeds, ſown laſt ſpring, look exceeding well; as alſo the young wheats: they have received little injury from the froſt, and appear freſh and ſtrong. Fodder will be plenty all over this diſtrict; and I never ſaw the cattle keep in better condition. *Jan.* 30.

(T

(The following Article is ſent us by a Correſpondent.)

We underſtand that Mr Loudon, the author of 'Obſervations on Planting,' &c. has juſt invented a very ingenious method of modelling eſtates, which will be of immenſe advantage to landed proprietors, particularly thoſe intending to improve, decorate or build. The variation of the ſurface is ſhewn exactly as it is in nature; and all the trees, hedges, roads, rivers, buildings, &c. are accurately raiſed on it, agreeable to a certain ſcale; and, afterwards, the whole is coloured from nature. A manuſcript volume of references, contains the names of the different farms and fields, the contents of each, and the nature of its ſoil, &c. with every other requiſite information. Mr Loudon has alſo a curious compoſition, which may be uſed without any previous preparation, and by which any gentleman may try, upon the model, the effect of any propoſed alteration or improvement: And alſo a ſmall wire net, each *meſh* of which is equal to an acre, by which the contents of any part may be inſtantly known, by applying it, and counting the meſhes which cover the field or ſpace to be meaſured. From the nature of the model, any changes which may afterwards be made in the ground, can be inſerted without injuring the piece; and hence no eſtate will ever require to be remodelled. Remarkable objects upon an eſtate ſuch as the manſion houſe, &c. can alſo, to give a clearer view of them, be modelled ſeparately, upon a larger ſcale than the general plan.

At firſt ſight, the unwieldineſs and bulk of a model would ſeem an inconvenience; but by dividing it into ſeparate parts (which parts are kept in a ſmall cheſt or box, and may be taken out and fitted together in a few ſeconds), it occupies little more room than a plan.

The advantages which Mr Loudon thinks will attend this mode of imitating eſtates, are the following, (viz.)

1. A proprietor will ſee a correct imitation or miniature of his eſtate, in the cleareſt manner, and without the riſk of being puzzled or deceived by a plan.

2. Every propoſed alteration or improvement, of whatever kind, will be clearly underſtood, and may be ſo pointed out to workmen, as that they will execute it with ſuperior eaſe and certainty. In planting and landſcape gardening, this will be of immenſe advantage; and, as a further aſſiſtance to it, Mr Loudon has alſo invented a kind of *working plan*, which will enable workmen to execute exactly the arrangement of trees, ſhrubs, and flowers, about any place, agreeable to the principles explained in ſection 3d of the 'Obſervations.' Thoſe who underſtand the mode of arrangement alluded to, and can compare it with the common mode of mixing all ſorts of trees indiſcriminately, will be convinced that this improvement is of great utility.

3. The effect of every alteration propoſed may be clearly ſeen before it is executed; whether it be the effect that changing the lines of fences, roads, &c. has in altering the contents of the adjoining enclo-ſures (and this can be inſtantly found by uſing the wire netting); or the effect of the addition of wood or buildings, whether uſeful or ornamental.

mental. It is needleſs to add, that the ſcheme of improvement can be altered and varied upon the model, until the beſt effect ſhall be produced, which effect may afterwards be exactly imitated upon the grounds. Making trials, on the model, of the effect of alterations, will form a very inſtructive and rational amuſement for proprietors.

We have ſeen, at Mr Loudon's, two models of the North Berwick eſtate; one ſhewing the preſent appearance and contents of the eſtate in general; and the other ſhowing the effect of an intended new place of reſidence for the proprietor (Sir Hew Hamilton Dalrymple). In addition to this laſt model, an elegant manuſcript volume, illuſtrated by drawings and ſketches containing Mr Loudon's ideas of the place; his reaſons for propoſing the improvements, and practical directions for executing them; accompanied with *working plans*, a large *vertical profile* ſhewing the effect of the whole, and a general eſtimate of the expence.

Mr Loudon, we underſtand, intends to ſend duplicates of the above models, plans, &c. to No. 4. Chapel-Street, Bedford-row, his lodgings in London; where, or at No. 7. Terrace, Edinburgh, they may be ſeen and examined by any gentleman who ſhall take the trouble of calling.

To the READERS of the FARMER'S MAGAZINE.

The PUBLISHERS, with a juſt ſenſe of former favours, reſpectfully acquaint their numerous Readers, that they are under the diſagreeable neceſſity of raiſing the ſelling price of the Magazine, in order that the increaſed and increaſing expences attendant upon the work may be compenſated. Deeply impreſſed with gratitude for the unexampled ſupport hitherto obtained, they delayed this ſtep longer than conſiſtent with their intereſt, and now reſort to it with regret; though it affords them much pleaſure, that ſeveral gentlemen of acknowledged diſcernment, whoſe opinions were previouſly taken, have decidedly ſanctioned the meaſure with the fulleſt approbation.

From the commencement of this volume, the ſelling price of each copy will therefore be raiſed to *Two Shillings and Sixpence*, at which ſum the Magazine will ſtill remain the cheapeſt periodical publication in Great Britain. For extenſive original information, it is equalled by none; and, if compared with other agricultural publications which have been attempted in our ſiſter kingdom, the publiſhers are almoſt certain that an unequivocal verdict in its favour will be pronounced by an impartial public. The principles which have uniformly been acted upon in the courſe of the work will be ſteadily retained, and every aid given to the diſſemination of rural knowledge. Extra pages will be furniſhed when any thing particular occurs, and plates of uſeful implements in huſbandry will alſo be given, when ſuch can be procured.

NOTICES

NOTICES TO CORRESPONDENTS.

Mr HAY will pleaſe excuſe us for delaying his *Thoughts on the Agricultural State of the Country, &c.* Many other communications from different correſpondents are in the ſame predicament.

An anonymous *Review* of Mr LOUDON's publication is received, and under conſideration. The gentleman who ſent it will obſerve that he is already foreſtalled; though probably this circumſtance will not prevent us from retouching the ſubject, eſpecially in ſuch parts as are only ſlightly noticed in the account now preſented.

The *Review* of Mr NICOL's *Practical Planter* is neceſſarily poſtponed.

AGRICOLA on the *Poor Laws* will appear in our next Number.

Mr LOW of ANNFIELD is entitled to our beſt thanks for the communication lately made us. The like acknowledgement is due to the author of the letter concerning the *Chineſe Plough*.

The *New Year's Gift*, from our old and worthy friend R R. is truly acceptable. We are ſorry, however, that we could not uſe it immediately, though we will not fail to beſtow a ſhare of the gift upon our readers, before the article is out of ſeaſon.

We truſt that POL-ŒCONOMICUS will pardon us for the liberty taken with his laſt communication. The alterations made, do not in the leaſt affect his argument; and we are utterly averſe to give unneceſſary offence, eſpecially to the gentleman therein mentioned, for whom we entertain much reſpect. If Pol-Œconomicus will kindly favour us with his addreſs, ſatisfactory reaſons ſhall be communicated to him. A ſubject, which he ſeems well calculated to elucidate, ſhall alſo be ſubmitted to his conſideration.

The author of the letter *On the Comparative Trial made at Edgerſtone with different Breeds of Sheep* ſhall be gratified. The wafer unfortunately had been placed on his addreſs, otherwiſe he would have heard from us reſpecting ſome parts of the letter. If the deficiency is ſupplied, we ſhall not fail to write him immediately.

The letter on *Kentiſh Huſbandry*, and various other communications lately ſent us, will be duly attended to. We are ſo much in arrears to ſeveral correſpondents, that an adequate apology can hardly be offered.

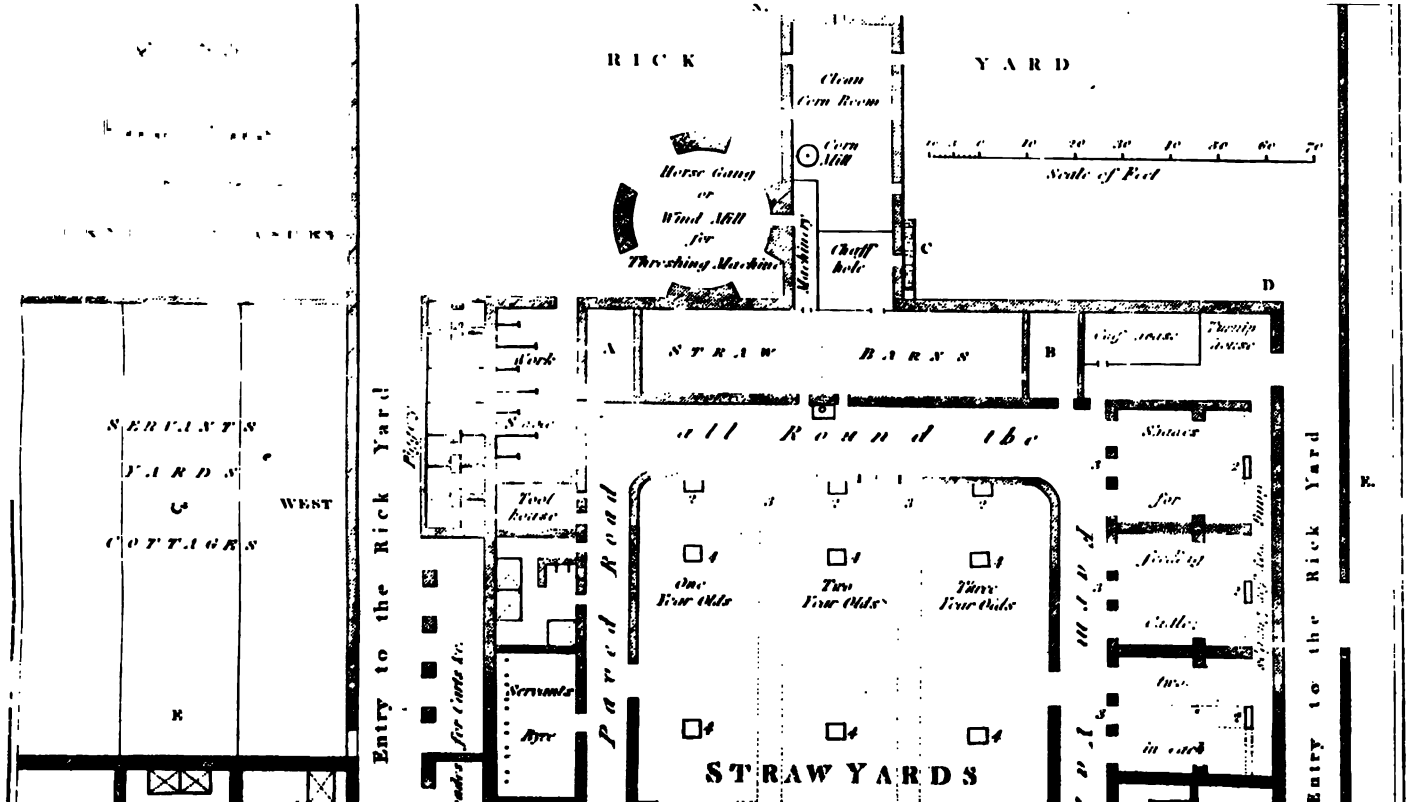
No. XXII. will be publiſhed on Monday, 20th May 1805.

ERRATUM IN THIS NUMBER.

In Lord Somerville's letter, p. 4, the punctuation of the laſt ſentence ſecond paragraph, has been executed in a way which renders the ſubject almoſt unintelligible. The reader is requeſted to correct the paſſage as follows:

'My own ſoils, of which the queſtion is aſked, are, *firſt*, a loam on a limeſtone rock, free fine working land if at all level; *2dly*, ſtone braſh tending towards a gravel; and, *3dly*, clay.'

[*D. Willison, Printer, Edinburgh.*


RICK YARD
Clean Corn Room
Corn Mill
Horse Gang or Wind Mill for Threshing Machine
Machinery
Chaff hole
Scale of Feet
C
D
A
STRAW BARNS
B
Turnip house
Work
Stone
all Round the
Shades
for
feeding
Cattle
two
in each
Tool house
Servants Ryce
Paved Road
One Year Olds
Two Year Olds
Three Year Olds
STRAW YARDS
Entry to the Rick Yard
SERVANTS YARDS & COTTAGES
WEST
E
E.

THE

FARMER'S MAGAZINE:

MONDAY, 20. MAY 1805.

(No. XXII.)

BRANCH I.

ORIGINAL COMMUNICATIONS.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Conſtruction of a Farm-Yard.

SIR,

HAVING lately examined ſeveral new farm-yards in Berwickſhire, where they are commonly called *courtines*, partly with a view towards building a new one on my own farm, though on a conſiderably ſmaller ſcale than that now offered for inſertion in your Magazine; I have endeavoured to combine the ſeveral advantages, and to avoid the defects, ſo as to conſtitute what ſeems to me calculated to ſerve every uſeful purpoſe, as economically as poſſible. If, therefore, you conſider it as worthy of being laid before the public, I requeſt that the plan may be engraven at my expence. I further call upon ſuch of your readers and correſpondents as conſider themſelves competent, to offer you plans, in correction of the errors and omiſſions in that now brought forward; and expect they will follow my example in contributing the expence of the illuſtrative engraving; for it is perfectly reaſonable we ſhould not involve you therein, to gratify our own vanity.

The preſent plan is calculated for a turnip farm, of which a conſiderable portion is kept in paſture, and, with ſmall and obvious alterations, may ſuit one of almoſt any extent. I have not added a table of references, as the plan is, for the moſt part, diſtinctly explained upon itſelf; and ſuch other explanations as may be neceſſary, will occur in the courſe of this letter.

I neither lay claim to the merit of inventing the preſent plan, nor

pretend to ſay that it is by any means perfect. As already mentioned, it is chiefly copied from different farm-yards lately built, or now building in this country, for various ſizes of farms. The plans of theſe, I have combined together, altered, and endeavoured to improve. I ſhall not therefore watch over the reception which my plan may receive from your correſpondents, with the jealous fondneſs of a projector, but leave it to its fate,—to your judgement, and to univerſal criticiſm,—diſclaiming all controverſy on the ſubject. I am perfectly ready and willing to be inſtructed, and hope to benefit by correction, as probably my own buildings may not be erected for ſome years.

It is hardly neceſſary to remark, that the thraſhing machine, and the barn for unthraſhed grain in the ſtraw, are meant to be over the clean corn-room and chaff-hole. That upper room ought to be large enough to contain a moderate ſized corn-rick at once, as, otherwiſe, it may often be neceſſary to carry in a rick during heavy rain or ſevere ſnow; and, ſhould any accident happen to the machine, ſo as neceſſarily to ſtop thraſhing, conſiderable injury may be ſuſtained by an uncovered rick, as I have more than once experienced for want of that conveniency.

In the clean corn-room, I have marked a place for a pair of millſtones, to break corn for horſes or cattle, or to grind bread-meal for the farmer's family and work-people, when not thirled. If a windmill is uſed, the ſtones may be very conveniently placed in the under floor of the tower.

It is propoſed to have a granary over the whole north range, or ſtraw-barn, from A to B; and the thraſhed and winnowed grain may be carried from the clean corn-room to the granary, by means of an outſide ſtair, as at C; or it may be hoiſted through a hatch, in the floor of the thraſhing-room, and thence carried or wheeled into the granary, by means of a falling bridge acroſs the place where the thraſhed ſtraw falls from the rakes into the ſtraw-barn. The paſſage from the thraſhing-room over the chaff-hole, to the place where the ſtraw falls, ought always to be open, for the purpoſe of returning ill-thraſhed ſtraw to be put again through the machine; for, in the beſt-conſtructed machine I have yet ſeen, ſhort or raw corn in the ſtraw, or which has not been well bound, or is confuſedly gathered by rakes after mowing, frequently needs to be twice put through, to produce clean work. The hatch between the clean corn-room and the thraſhing-room, is likewiſe a very uſeful paſſage, by which ſhorts, and ill humbled barley, may be hoiſted up, and again put through the thraſhing machine.

Some theoretical perſons may object to a granary, as an improper appendage to a farm, under the idea that all grain ought to be marketed immediately after thraſhing. I have no intention

to

to enter into controverſy with thoſe miſo-monopoliſts, who, during actual ſcarcity, would often produce real famine, if their ideas were followed out. It may be quite ſufficient to remark, that a farmer muſt reſerve grain for his horſes, his family and ſervants, and for ſeed; not to mention a neceſſary ſummer ſupply for thoſe eternal ſnarlers. And the clean corn-room is certainly a very incommodious place for ſtoring grain of different kinds, eſpecially in time of thraſhing, were it only for the chance of mixing, which cannot poſſibly be avoided, when the corn is lying looſe there.

From the granary, the corn may be lowered into carts, either by means of a window to the floor; or one of the doors of the ſtraw-barn may be large enough to admit a cart, under a hatch left in the granary floor for that purpoſe.

The two ſtraw-barns are intended for ſtoring two different kinds of ſtraw for uſe. In one may be kept what is intended only for litter; and in the other, either black ſtraw for the horſes, or any other better kind that is meant to be uſed as fodder; or it may ſerve to keep hay for the ſtables. As the extent from A to B ſeemed unneceſſarily large for keeping ſtraw, I have partitioned off an apartment at each end in the plan, which may be converted to any uſeful purpoſe not there ſpecially provided for. One of them may ſerve to keep a bull or a ſtallion, and the other may be uſed for keeping young horſes.

It is intended there ſhould be a pump at 1 in the plan, with a ciſtern or reſervoir above it, ſufficiently high to communicate, by pipes and turncocks, to the ſeveral water troughs marked 2. At the pump, there ſhould likewiſe be a trough for watering the horſes. Where a pipe, with ſufficient level, can be brought from any conveniently ſituated ſpring, brook, or pond, this pump will of courſe be omitted; but the ciſtern and watering trough at 1 will be preſerved. Where no ſuch ſupply can be procured, nor a well found for the pump, I would ſtrongly recommend to have a tank, or water cellar, under ground, which may be placed below the ſtraw-barn. This ought to be of ſufficient ſize to contain a full ſupply at all ſeaſons. It is to be fed by means of ſpouts from all the roofs of the farm yard, and ſhould have a pump connected with it, as in the plan.

In caſe none of theſe modes of ſupply of water can be procured, the horſes and cattle muſt neceſſarily be driven regularly to water. But whoever has experienced the great conveniency of plenty of water in a farm-yard, properly diſtributed, will not ſcruple a moderate expence to ſecure that excellent and indiſpenſable neceſſary of life at all times in abundance. Cattle getting a ſufficiency of turnips, do not neceſſarily require water, though a

full command of it is always highly uſeful. But all animals that live entirely on dry food, muſt conſtantly have water at command.

Another large tank may be conſtructed under the loweſt part of the yard, having gutters from every part, to convey into it all the ſuperfluous liquid which would otherwiſe run to waſte. Having a pump connected with this tank, its liquor may be pumped up at any time, and conveyed, by moveable ſpouts, to any part of the ſtraw-yard that is too dry. This tank ought to have a hatch, to admit of being cleaned out yearly. And I muſt obſerve, that ſpecial care ought to be taken, before any perſon goes into it for that purpoſe, to ſee that the air be not foul. This is eaſily aſcertained, by lowering a lighted candle to the bottom. If the air is dangerous, the candle will either go out, or burn very dimly; if ſafe, the candle will burn bright. Both tanks will require to be covered by a ſtout arch, of ſtone or brick.

All the ſtraw racks, marked 3 in the plan, are meant to be open at their outer ends, into the paved road round the ſtraw-yard, for the purpoſe of carrying in ſtraw. They are to be conſtructed of poſts and rails, having a ſparred bottom, raiſed two feet or ſo from the ground, to be out of the way of the litter in the yards. Thoſe parts which are dotted acroſs, are meant to be moveable, for admitting carts to carry off the manure from the middle yard, and for letting the cattle out and in occaſionally. But, for this latter purpoſe, it will be proper to have a door as at 5. Indeed, all the three ſtraw-yards may very properly have ſimilar doors, for the purpoſe of taking in turnips to the ſtraw yard cattle.

The boxes, marked 4, are intended for giving an allowance of turnips to the cattle in the ſtraw-yards, which greatly improves both them and the manure which they produce. As the turnips given to the feeding cattle ought to have their tops and tails cut off; theſe, in part, may ſerve the ſtraw-yard cattle.

The ſheds for feeding cattle, have each a ſmall open yard, to allow them air and exerciſe. The cattle are fed in pairs, and not tied up. In theſe ſheds, there ought to be a water-trough between each, marked 2 in the plan, placed cloſe to the turnip gang-way, for the cattle-man to turn the ſtop-cock, as neceſſity may require; and, likewiſe, to clean out the troughs frequently. The turnips are meant to be given in narrow troughs, alongſide of the gang-way, which ought to be regularly cleaned out by the cattle-man. There may likewiſe be two ſmall boxes or troughs in each of theſe ſheds, for giving the cattle oil-cake, or corn or bean meal. If connected with a diſtillery, there can be no difficulty in arranging the means of giving draff and dreg. The former

former can be ſerved out in the turnip troughs, marked by dou
dotted lines along the gang-way: and the latter may be co v
by pipes into the ciſterns or water-troughs The open racks
interpoſed between each two feeding-ſheds, are intended for ſtr
or hay. The entries to them are intended to be wide enough
admit a cart for carrying off the manure. This need not be dc
above once in two or three months, when the yards get too fu
and the manure may then be carted out to ſome convenient part
the farm, near the field upon which it is to be applied.

In ſome farm-yards which I have ſeen, inſtead of a ſta
for the farm horſes, ſimilar open ſheds and yards are built
each pair of work-horſes uſed on the farm. I am not perfec
ſatisfied of the propriety of this procedure in our northern clima
horſes being originally the inhabitants of warm or very temper
regions. But, in ſummer, where litter can be had for the pi
poſe, it is an excellent plan, to keep the work-horſes conſtan
in ſuch yards, upon cut clover, tares, or other green food, w
plenty of dry litter. The cows and young cattle of the ſa
may likewiſe be kept to great advantage in a ſimilar manner,
a part at leaſt of every day in ſummer and autumn. Dri
ruſhes, ferns or quicken roots, or any other dry ſubſtance
bedding, ought to be carefully collected for this purpoſe. Sa
duſt, ſpent tan-bark, the refuſe of lint mills, even dry p
waſte may ſerve very well, where ſuch can be procured. H
ing a great command of coal aſhes, I every year bed my ſtra
yard with theſe, to abſorb the muck-liquor. In theſe ways
great deal of additional diſpoſable manure may be yearly collect
I have ſometimes thought of paring the ſurface of ſtubble fiel
after harveſt, with a ſkim plough, or the like; then harrowi
and raking the ſtubble and weeds into heaps, to be carried off
augmenting the litter in the yards.

The litter from the ſtables and byres, ought to be daily whee
into the ſtraw-yards; for which purpoſe, convenient openi
ought to be left in the ſurrounding wall. There may either
doors, or a kind of windows with hanging ſhuts. And as cat
are particularly fond of horſe-litter, that ought to be diſtribu
among the different ſtraw-yards.

Perhaps there may be, in the plan, a greater number of feedi
ſheds, than a four plough farm will afford turnips to ſuppl
eſpecially, as I would only propoſe half the turnips, led off in n
row ſtripes, to be applied in this way, the other half to be c
ſumed by ſheep where they grow. But it is far better rather
have more than enough of conveniences than leſs. Any of th
ſheds, not occupied for ſtall-feeding, may be applied to ſerve
ſion, occaſional purpoſes.

On the other hand, ſhould any farther conveniences be neceſſary, than are provided for in the plan, there is full room for them along the back wall of the barn, between C and D.

I have only admitted one cottage or dwelling-houſe in the farm-yard, which is meant for the ſteward, that he may always be at hand to ſuperintend the whole economy of the yard. That cottage I have diſtributed upon rather an old faſhioned plan, upon very diſtant recollection of one ſeen in my youth, and which I think ſnugger and warmer than thoſe now in uſe. My cottages are ceiled, for greater comfort, which adds very little to the expence. Immediately adjoining the ſteward's houſe, a ſmall apartment is partitioned off for tools under his charge, wherein may be placed the corn-cheſt, from which he can give out the allowances of corn for the working horſes to the ſeveral ſervants.

As a ſecurity againſt fire, I would recommend all the croſs walls to be carried a ſmall ſpace above the roofs; and that no doors of communication be left in any of theſe. Though every farmer, indeed every perſon whatever, ought always to be inſured againſt fire, it is needleſs to obſerve, that great loſs and inconvenience muſt neceſſarily follow from fire, even though fully inſured. It is meant of courſe, that the whole, unleſs otherwiſe expreſſed, ſhould be ſubſtantially built of ſtone and lime, or bricks; timbered with good foreign fir; and all the roofs covered with tiles. Were I a proprietor, or going to build upon a long leaſe, I would certainly prefer covering the whole onſtead with good ſlates.

At E, I have placed three cottages for the farm ſervants, one of theſe in the way now moſt uſual, the ſecond after the old faſhioned way, and the third left void. The ſize, I have experienced to be fully ſufficient for a hind's family, is twenty-one feet by ſixteen, inſide meaſure. Theſe may be placed in any convenient ſituation on the farm, not too far diſtant from the yard, yet far enough off to avoid the danger of communicating fire. The number on the farm muſt depend, of courſe, upon a variety of circumſtances, of which each farmer muſt judge for himſelf.

I have not introduced a farm-houſe. It is now cuſtomary to place the farmer's houſe at ſome diſtance from the yard; and the ſize and diſtribution of apartments having no neceſſary connection with the purpoſes of the farm, this is left to the taſte and circumſtances of the farmer. It may not be improper to remark, that farming being now a buſineſs which requires capital, a farmer paying a large rent is well entitled, not only to have every neceſſary convenience in the farm-yard, for carrying on his operations to the beſt advantage, but has a right to be comfortably lodged. And juſtice requires I ſhould add, that, in this county, moſt proprietors are ſufficiently liberal in both reſpects.

Berwickſhire, February 1805. R. r. r.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIR,

IT has juſtly been remarked by ſeveral of your correſpondents, that the principal advantage of your excellent Miſcellany is not to inſtruct farmers in thoſe favoured ſituations where the modern practice of huſbandry is adopted and eſtabliſhed, but to diſſeminate uſeful knowledge in thoſe remote, extenſive diſtricts, where agriculture is ſtill in its infancy, or where improvement is only beginning to appear. Fully to accompliſh this purpoſe, much care ſhould be taken to avoid every chance of miſtake. The claſs of farmers who are to be moſt benefited, from the ſcantineſs of their previous knowledge, are ill qualified to ſift truth from error, and to diſtinguiſh uſeful practices from dazzling, but pernicious projects. It is ſtill poſſible, however, notwithſtanding the utmoſt caution, that miſconceptions may ſometimes occur: In that caſe, perhaps no remedy is ſo eaſy, and ſo efficacious, as that every correſpondent ſhould ſubjoin his name to his communication. This ſlight improvement, beſides ſerving the important purpoſe of checking quackery and preſumption, would afford a key to every reader, for obtaining privately an amicable explanation of any thing which appeared to him obſcure, and would contribute not a little to prevent thoſe inſtances of controverſy which ſometimes occupy a part of the Farmer's Magazine.

I have been led to theſe remarks by the account of a comparative trial of different breeds of ſheep at Edgerſtone, inſerted in your Magazine for Auguſt laſt. It is but lately, and accidentally, that I diſcovered the correſpondent by whom it was tranſmitted. As the concluſion drawn from that experiment is, that the Forreſter is preferable to the other breeds mentioned, ſome obſervations, in refutation of an aſſertion ſo oppoſite to the general ſentiment of the country, may not be unacceptable to the readers of your Miſcellany; more particularly as the trial ſeems to have been conducted with an unuſual degree of accuracy, and is ſanctioned with the *imprimatur*, without any qualifying 'Note of the Conductor.'

The account of the experiment, it appears, was not intended for publication. Being ſhown to ſome friends by the proprietor, it afterwards paſſed through other hands, and at length found its way into your Magazine. In the laſt ſtage of its progreſs, it received—*vires acquirit eundo*—beſides a preface and a recapitulation, the following ſweeping concluſion, that, without regarding the quantity of food conſumed by the different breeds, the reſult

of the experiment is altogether in favour of the black-faced ſheep.

Before examining the truth of this concluſion, it may not be improper to take notice of an obſcurity which runs through the whole account of the experiment. In ſumming up the weight of the carcaſes and offals, a conſiderable addition is made for what is called by the writer, 'the weight of animal life.' Some of your readers cannot affix to that deſignation any preciſe idea. Others, taking the expreſſions in their natural meaning, abſurdly ſuppoſe that animal life is a diſtinct ſubſtance, ſuſceptible of weight and meaſure; of which, health is the greateſt increaſe, diſeaſe a partial diminution, and death a complete annihilation. It is indeed eaſy to conceive that ſome animal fluids may have imperceptibly evaporated, and even that ſome groſſer particles may have unavoidably been loſt, in the tedious operations of killing, flaying, diſſecting, and weighing. The chief deficiency, however, ariſes from a circumſtance familiar to every dabbler in commerce—the difference between retail and wholeſale weight. They well know that it is impoſſible, without much greater accuracy than is attainable in ordinary practice, to weigh one hundred and twelve pounds, one by one, from a net hundred weight of any commodity. This deficiency, familiar to every ſchool-boy who has learned the commoneſt ſyſtem of arithmetic, under the name of Cloff, varies from two pounds for every hundred pounds to two pounds for every three hundred weight. The agreement is obvious between that allowance in favour of retail, and the loſs obſerved in the Edgerſtone experiment. How far it warrants the concluſion ſubjoined by your correſpondent, will appear from the following obſervations.

1. The calculations are not altogether accurate. In the account of the South Down, there is an omiſſion of two pounds. The weight of carcaſe, offals, and animal life, amounts to 134 lib.; whereas, to agree with the live weight, it ſhould have been 136 lib. Suppoſing one half of this deficiency to be carcaſe, and the other half to be offal, we may ſafely eſtimate the price of both at 8½d., which raiſes the animal's value in the ſhambles to 2l. 17s., and the gain of one year's feeding to 1l. 17s. In the account of the Leiceſter, there is a greater error—no leſs than 10s. of an overcharge; which is chargeable, not indeed on the original manuſcript, but on the copy tranſcribed for the Magazine. The value in the ſhambles is 2l. 14s. 11d. When 1l. 6s., the prime coſt, is deducted, there remains 1l. 8s. 11d. as the gain of one year's feeding. The importance of theſe corrections will appear in the following Table of the gain from one year's feeding per ſheep.

Printed

	Printed Statement.	Corrected Statement.
Leiceſter, -	L. 1 18 11	L. 1 8 11
South Down, -	1 16 3½	1 17 0
Cheviot, -	1 10 6¼	1 10 6¼
Forreſter, -	1 15 8¼	1 15 8¼

2. The calculations proceed upon a falſe foundation. The preceding ſtatement is an accurate detail of the gain upon each of the four ſheep, and, as ſuch, might be, as was intended by the proprietor, a uſeful private memorandum. It is of little uſe, however, in determining the general queſtion, which of the four breeds is moſt profitable to the feeder. Before inſtituting any compariſon, it is neceſſary to equalize the prime coſt. The Forreſter alone is bought, as well as ſold, at its intrinſic value. The Cheviot very probably—the Leiceſter and South Down moſt certainly, ſtill bear in this country a monopoly price. In the preſent experiment, we may ſuppoſe that 1l. 19s. is the fair price which a feeder, with no other view than to fatten them for the butcher, would give for three Forreſter wether hogs, whoſe live weight is 199 lib. No perſon can reaſonably ſuppoſe that the ſame feeder, with the ſame intention, would give 2l. 5s. for three Cheviot wether hogs, whoſe live weight is only 182l. It is ſtill leſs probable that he would give 3l. for three South Down, and 3l. 18s. for three Leiceſter wether hogs in the ſame circumſtances, while their reſpective weights are only 217 and 219 lib. On the contrary, we muſt ſuppoſe that he will purchaſe the improved breeds by the ſame rule with which he knows that they muſt be ſold. Taking the Forreſter therefore for his ſtandard, he will give 1l. 15s. 8d. for the Cheviot, 2l. 2s. 6¼d. for the South Down, and 2l. 2s. 11d. for the Leiceſter. The three improved breeds, like the Forreſter ſheep, are valued at 2¼d. nearly per lib. of live weight. This is ſuppoſed to be their intrinſic value at that time to the feeder; and intrinſic value, when monopoly ſhall ceaſe, will be the only rule by which their price is to be eſtimated. Diſregarding therefore the extravagant prices which are at preſent in this country given for the Cheviot, South Down, and Leiceſter breeds, as being merely local in their extent, and temporary in their duration, and conſequently, for thoſe reaſons, unworthy of influencing a general eſtimate of their reſpective intrinſic value, I have drawn out, on this principle, the following Table, which preſents a very different view from the preceding, of the profit from each of the four different breeds. The third column ſhews the gain per head on one year's feeding; and

and to make the compariſon clearer, a fourth is added, to ſhov the gain per cent.

Species of Sheep.	Intrinſic Pime Coſt.	Value in the Shambles.	Gain per Head.	Gain per cent.
Leiceſter,	L. 0 14 3½	L. 2 14 11	L. 2 0 7½	284¼
South Down,	0 14 2	2 17 0	2 2 10	300
Cheviot,	0 11 10½	2 5 6¼	1 13 7¾	283¼
Forreſter,	0 13 0	2 8 8¾	1 15 8¾	274¾

From the laſt column, it appears that there is a conſiderable profit, varying from 9½ to 25¼ per cent. in favour of the improved breeds. The ſources of this ſuperiority are detailed in the following Table.

Species of Sheep.	Weight gained per Head.	Do. Do. per cent.	Weight of Carcaſe per Head.	Do. Do. per cent.	Value of one Year's fleece.
Leiceſter,	58lib.	76½	74lib. 0oz.	55	L.0 5 6
South Down,	67	97	74 3	55¼	0 5 2½
Cheviot,	58	98¼	64 11	55¼	0 3 9½
Forreſter,	65	92¾	71 3	52¾	0 2 0

3. The compariſon is fairly inſtituted. In the three improved breeds, the medium ſheep is very properly ſelected for the butcher and is brought forward as the fair repreſentative of its ſpecies In the caſe of the Forreſter, however, there is a violation of thi rule. The beſt, not the medium ſheep, as in the other breeds is condemned to the ſhambles. This circumſtance, whether th effect of accident or of deſign, detracts conſiderably from the ac curacy of the experiment. The live weight of the beſt Forreſter is 135 lib., whereas that of the medium is only 125¼ lib. Through out all the calculations, therefore, there is an undue advantage o about 8 per cent. in favour of the Forreſter ſheep. As it will ap pear, upon inſpecting the preceding tables, that the improved breeds, even in ſuch unfavourable circumſtances, ſtill retain a de cided ſuperiority, I hope I am juſtified in adopting the converſ of the concluſion ſubjoined to his account by your correſpondent namely, that the reſult of the Edgerſtone comparative trial i altogether *againſt* the Forreſter ſheep. I am, Sir, your moſt obe dient humble ſervant,

Scotſtown, 2d Jan. 1805. JOHN GRAHAM.

NOT

NOTE BY THE CONDUCTOR.

We leave the parties to ſettle this diſpute amongſt themſelves, and have given the above very ſenſible and candid reply in the preciſe words conveyed to us. Our ſheep correſpondents have a knack of falling into diſputes, but it will be our care to diſpenſe impartial juſtice betwixt them, and to refrain from perſonal interference, if ſuch can poſſibly be avoided.

N.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

The Impolicy and Impropriety of Stenting or Aſſeſſing for Support of the Poor demonſtrated.

SIR,

THERE is no feeling more delightful than that which ariſes in the heart of a wiſe and virtuous parent, from ſeeing his children treading in his ſteps, and proſecuting the ſchemes which his ſagacity projected. It is with a feeling of ſomething of this ſort that I have read a paper in your 20th Number, page 457, 'Upon the Poor Laws, and Preſent State of the Poor in Scotland,' wrote by Agricola Junior, whom I ſhall with pleaſure call my ſon. And I beg leave to return him my ſincere thanks for the very handſome and gentleman like manner in which he comments upon the paper I ſent you upon the ſame ſubject, and which is publiſhed in your Magazine for February 1804. I ſhould not have thought of troubling you again upon that ſubject, however important it may be in itſelf, and from its immediate connexion with agriculture, if it had not been that Agricola Junior ſeems to wiſh for a more full account of my views and ſentiments upon the ſubject of the poor's laws and preſent ſtate of the poor, as contained in the paper he alludes to; and he ſeems entitled to every attention and reſpect, both from the merits of his own performance, as well as the genteel and candid manner in which he treats the ſubject.

I ſhall therefore give him the beſt account I can of my ſentiments upon the ſubject; and at the ſame time uſe the privilege of a parent, in giving him my advice where I think he is wrong. And I begin with obſerving, what will readily be acknowledged, that there is no part of political economy of greater importance to the well-being of the community in general, and to agriculture in particular, than the adoption and execution of a wiſe ſyſtem

tem of laws and regulations for the management of the poor. The virtue and comfort of a large ſhare of the community depends upon it. That ſyſtem is moſt undoubtedly the beſt, which moſt effectually promotes and encourages induſtry, frugality, and a general ſentiment of virtue; the true and genuine ſources of competency, and of that noble and generous ſpirit of independence which becomes Britons; and, on the other hand, diſcourages vice, profligacy, and ſloth, which infallibly lead in their train poverty and meanneſs of ſpirit. Now, by a careful peruſal of the whole code of ſtatute laws relating to the poor, it will be found that this was all along the real object kept in view by our wiſe legiſlators upon this ſubject. While they provide, with the utmoſt ſolicitude and humanity, for the wants of the really neceſſitous poor, they diſcourage, by all the threatened vengeance of law, all vagrants, idle and diſorderly perſons, ſorners and ſturdy beggars. If any one will take the trouble to peruſe the abridgement of the ſtatute law of Scotland reſpecting the poor, contained in Kaimes and Erſkine, he will find that this is the general ſpirit and tendency of the whole.

Every pariſh, by law, is obliged to maintain its own poor. Bridewells and houſes of correction are ordered to be built for the confinement and amendment of vagrants and diſorderly perſons, and a fine of 20s. is impoſed upon all who ſhall be found to ſerve them. But that the really neceſſitous poor may be properly cared for, it is ordained, that wherever the funds of a pariſh are inadequate to their ſupport, the heritors ſhall meet and ſtent themſelves in a ſum neceſſary for that purpoſe, and to have relief upon their tenants for the one half of it. It is about the operation of this ſtent that my ſon and I differ. I ſaid that the lateſt unrepealed acts of the Scots Parliament and Privy Council authoriſe this mode of ſupporting the poor. But I ſaid likewiſe, that the general good ſenſe of the nation had nearly allowed this mode to go into deſuetude, from obſerving its pernicious effects; becauſe recurring experience has taught, that wherever a ſtent is once regularly eſtabliſhed in any pariſh, it produces all the pernicious effects of the poor laws in England, which are now become an intolerable increaſing burden. It increaſes, and will for ever increaſe, the number of the poor, by increaſing that ſloth, idleneſs, profligacy, and meanneſs of ſpirit, from whence poverty for the moſt part originates. And all from this very plain, though all-powerful cauſe, that they know, let them live as they will, they have a certain eſtabliſhed reſource againſt old age and poverty, which they cannot be deprived of. Let any one attentively conſider what is the ordinary effect of habit, of opinion, and of the aſſociation of ideas, upon the tempers and conduct of men;

men; and they will ſoon be convinced what muſt be the effects of a regular ſtenting for the maintenance of the poor upon all the lower orders of ſociety.

Thus far then we are both agreed. I agree with Agricola Junior, that a ſtent, when abſolutely neceſſary, is the legal mode of ſupporting the poor in every pariſh in Scotland. We at the ſame time ſeem both of us to be ſenſible of the pernicious effects of this mode. All that we then can differ about is, the frequency of putting it in execution. If I do not miſtake his meaning, it appears to me that he would have a ſtent regularly eſtabliſhed, as the common and ordinary plan for ſupporting the poor; and this in an eſpecial manner, with the view of counteracting the deficiencies and inconveniencies that may occaſionally ariſe from the hard-heartedneſs and callouſneſs of ſome, and the graceleſsneſs of others. I would wiſh, on the other hand, never to ſee it put in execution, except in caſes of the moſt urgent neceſſity. And when the miſerable and pernicious conſequences of a regular ſtent is ſeen and acknowledged by us both, I think it ſhould decide the queſtion.

Let a ſtent be once regularly eſtabliſhed, and let it be put under any regulations that human wiſdom can deviſe; whenever, and as ſoon as the inferior orders of ſociety know that there is a ſure and certain fund that they may truſt to in the event of poverty or old age, it will not be in the power of man to prevent them from abuſing the information, ſo as to occaſion that very poverty which it is meant to relieve. It is the looking forward and truſting to this fund, which they conſider themſelves entitled to, which is the *origo mali*. Deprive them of this ground of truſt, or rather render it doubtful from its ſeldom recurring, and they will ſurely be more inclined, in the days of health and ſtrength, to be more economical, and to exert themſelves to better purpoſe, in order to ſave a penny againſt the evil day, to purchaſe ſome few neceſſaries at leaſt, if not comforts of life. I think all this will naturally and neceſſarily happen from the very nature and condition of man. In fact, we have nothing but to look to England, and we will ſee that it will as invariably happen as the ſun riſes and ſets.

I really wiſh to ſee the poor liberally ſupplied, and well cared for. It is a ſacred moral duty impoſed upon us by the condition of our nature to attend to this, as well as by the principles of our holy religion. But as I have obſerved from experience, that nearly nine out of ten are the cauſe of their own poverty, either through idleneſs, want of economy, or ſomething worſe, I would by all means be for adopting that plan which had the beſt and moſt obvious tendency to correct theſe vices. And I can ſee none

better

better than that which the general courſe of Divine providence points out, which is, to let the evil correct itſelf, or, in other words, to let them ſee they have no certain abſolute dependence upon which they can rely, nothing but the common charity of mankind; and therefore, if they perſiſt in their vices, they may expect to meet poverty and contempt, at a time of life when they are leaſt able to bear them. This is reading a moral leſſon to them, which touches the niceſt ſprings of the human heart. And that it will be effectual, we have the cleareſt proof, from the almoſt univerſal practice and experience of the whole of Scotland. It is confeſſedly but in few places where a ſtent is uſed. The poor are ſupplied by the voluntary charity of others; and yet we hear of few or no complaints of their being neglected or reduced to great diſtreſs. Leave mankind to the free and regular exerciſe of their humanity and benevolence, and the poor, in fact, will never be neglected as long as the world ſtands. Such will be the effect in common and ordinary caſes.

But it is equally true, that, under the beſt poſſible regulated ſyſtem of police, many unfortunate caſes may occur in a pariſh which call for extraordinary ſupply. The huſband or wife of the labourer or mechanic may, by ſickneſs or accident, be prevented from taking care of their infant family, or of gaining their daily bread. Caſes of blindneſs, idiotiſm, or furioſity may occur, that require particular and expenſive attendance. Backward and unfavourable ſeaſons, as of late, may ariſe, and occaſion ſcarcity. In theſe, and all ſuch caſes as theſe, extraordinary ſupplies muſt be raiſed; and it is only then, if at all, I would have recourſe to a ſtent; and not even then, if another remedy could be found. And, from what happened during the late general calamity, I think we may ſafely conclude, 'that whenever there is a real and apparent neceſſity,' a remedy will always be found in the free and liberal ſpirit of Scotſmen. Then we ſaw almoſt all deſcriptions of perſons freely and cheerfully come forward to ſupply the wants of the poor and helpleſs. And I muſt in juſtice acknowledge, that, ſo far as my obſervation went, the heritors were fully more forward in doing this than their tenants. This, then, is one ſtrong proof, a proof from recent fact, that if men are left to themſelves, we may in general truſt to their good ſenſe and humanity for relieving and ſupplying the real wants of the neceſſitous poor. Exceptions, as in all things elſe, may occur, but they will be very rare.

You will obſerve I ſpeak of country pariſhes; becauſe it is with theſe that I am not only beſt acquainted, but I alſo admit that there is perhaps a neceſſity of regulating the poor ſyſtem in towns in a different manner. When at any time then, in a country pa-

riſh,

riſh, the poor ſhall either be more than ordinarily numerous, or when any unforeſeen extraordinary calamity ſhall ariſe, I would by all means, firſt try a temporary expedient, and *only*, if that ſhould fail, have recourſe to a more permanent, or a more violent meaſure. Let a weekly, monthly, or quarterly contribution be intimated by the miniſter from the pulpit; and let all heritors, whether reſident or not, be required to concur. Let it be done and adhered to with firmneſs and ſpirit, under the penalty of a ſtent. Let this, or any other expedient that prudence may dictate, be firſt tried; but, for God's ſake, avoid a ſtent to the very laſt moment, as being ſingularly ruinous to the poor themſelves, vexatious and diſtreſſing to the opulent, and as having a natural and evident tendency to tear up, by the roots, the very heartſtrings of charity and benevolence, which, if left to their own freedom, would take root and flouriſh, and bloſſom as the roſe. Conſtraint and charity are as oppoſite as light and darkneſs. They are perfect antipodes. In fact, they are in their nature irreconcileable, and, like death and ſin, they mutually deſtroy one another. No, my ſon; while we are both of us labouring in the ſame good cauſe, let us not, through too much anxiety or forward zeal, undo our own work. Virtue is our object; the great virtues of induſtry, frugality, ſobriety, and charity, upon which the exiſtence of ſociety depends. Force may ſometimes be neceſſary to correct irregularities, or prune excreſcences; but it can never nouriſh up the plant upon which theſe will grow up to maturity. It is perſuaſion, example, and a ſenſe of intereſt: it is a mind enlightened with knowledge, and impreſſed with a ſenſe of virtue, that alone can do it. Force and virtue are incompatible; and beſides, the blood of a Scotſman boils within him at the very mention of the word *force*. Let us truſt then, in the firſt inſtance, to the free and liberal ſpirit of our countrymen for doing a generous and charitable action to thoſe in diſtreſs, and never have recourſe to that odious *ſtent* but in caſes of the laſt extremity, or the moſt urgent neceſſity, and after every other means have been tried in vain.

If the police of the country was well regulated and adhered to, as it ought to be, that neceſſity would ſeldom or ever happen. The burden of ſupporting their own poor in any country pariſh, is a mere trifle; it is next to nothing, if we have none but our own poor to ſupport. But the country is abſolutely oppreſſed with ſupporting the vileſt and moſt worthleſs of all nuiſances, the idle, diſorderly, and vagrant beggars; a ſet of people who are not only unproductive themſelves, but who prey upon the induſtry and frugality of others. We complain, and with ſome reaſon, of the weight and multiplicity of our taxes; but I aver,

aver, that our ill-timed (I will not call it charity) alms to theſe peſts of ſociety, amounts to more, in the courſe of a year, than all our taxes put together. At the ſame time, I appeal to every one, when in the act of giving that alms, if they do not feel diſguſt ariſing in their minds at the unworthy objects of it, as well as a conſciouſneſs that they are doing wrong. I abſolutely do not know any thing more deſtructive of good morals, and more hurtful to the intereſts of the community, than the encouraging theſe vagrants. By doing ſo, we do what we can to encourage the vices of ſloth, improvidence, lying, meanneſs, and intemperance; in ſhort, we encourage a very numerous claſs of mankind to withdraw their portion of labour and induſtry from ſociety, without which it cannot exiſt; and therefore, by no very violent hyperbole, we may be ſaid to be its actual murderers.

I frankly acknowledge, that one chief motive that induced me to write that paper which Agricola Junior ſo handſomely animadverts upon, was, to endeavour to point out the evil tendency of encouraging this nuiſance to agriculture in particular, as well as to ſociety at large; and to ſhow, from a detail of our ſtatute law how extremely eaſy it is to remove it. To ſpeak in the vile jargon of the revolutioniſts of France, 'There is nothing more requiſite than to *will* it, and it is done.' By the detail which I there gave, it is perfectly evident that the magiſtrates, particularly the juſtices at their quarter ſeſſions, have the power completely in their own hands. And when this is the caſe, they muſt forgive me for ſaying they are much to blame for not exerciſing it. Let them only do what I then took the liberty to recommend to them, which was, to appoint a number of acting conſtables in each pariſh, for the ſpecial purpoſe of apprehending and confining vagrants, under the penalty of being puniſhed for neglect. Let an example or two be made of thoſe who ſerve them, by exacting the fine of twenty ſhillings; and I will venture to engage for any ſum, that, in a very ſhort ſpace, theſe vermin will be ſwept from the face of the earth. If juſtices ſhould complain that they have not ſufficient funds for defraying the expence of apprehending and confining them, they have only to lay on a few ſhillings more of *rogue-money* at their meetings for laying on the ſupply, and the county will pay it with pleaſure. I have obſerved in the Weſt Country Journal, that the gentlemen of Ayrſhire have adopted ſome ſpirited reſolutions to that effect, and appointed them to be read in all the churches within the county. But they may publiſh and appoint them to be read every week for twenty years to come, and all to the ſame purpoſe, unleſs they cauſe them to be put in execution; and there is nothing but the ſtern rod of authority that will do this: And here authority is highly

highly juſtifiable and laudable, becauſe it is exerciſed for the correction and puniſhment of vice. The law not only authoriſes, but loudly calls upon them to do this; and, by their doing it, they will prove themſelves 'to be a terror to evil doers, and the praiſe of ſuch as do well.'

Agricola Junior's propoſal of Benefit or Friendly Societies among the labouring and induſtrious poor, is moſt excellent, and completely meets my ideas, by keeping up that ſpirit of frugality and independence which I wiſh to ſee cheriſhed among them; and I ſhould rejoice to ſee it put in practice in every town and country pariſh in Scotland. I remain, with much reſpect,

Sir, your moſt humble Servant,

21*ſt December* 1804. AGRICOLA.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Utility and Neceſſity of Summer Fallow.

SIR,

WHATEVER ſome modern agriculturiſts may pretend, and however ingeniouſly they may argue, 'that in all well cultivated countries, ſummer fallow ought to be aboliſhed,' yet every practical farmer in this country knows, that in wet ſoils it cannot be diſpenſed with, but, on the contrary, in ſuch ſoils, is of as much conſequence to good huſbandry, as the key-ſtone is to the arch: In ſhort, Sir, it is the foundation on which we build our hopes for a productive rotation of crops. On this account, Mr Conductor, I cannot but obſerve, that you deſerve well of your country for being all along ſuch a ſtrenuous champion in the cauſe of ſummer fallow. And as it is of great importance, in farming, to have it well managed, I hope a few thoughts on that point will not be unſuitable to your publication. I am not ſure, even on dry light ſoils, where the turnip crop is with propriety adopted, but that ſummer fallow ſhould now and then intervene, in order to eradicate thoſe kinds of weeds which you will frequently obſerve infeſting ſuch fields as are invariably cropped with turnips, without the intervention of ſummer fallow. I am aware that a few farmers, whoſe management is in every reſpect ſo perfect, that their fields are almoſt as free of weeds as a well-dreſſed garden, may be quoted as examples againſt my ſcheme; but you need not to be reminded, Sir, that every farmer is not ſo perfect, and, I preſume, muſt have frequently ſeen abundant evidence of the juſtneſs of this obſervation. However, I believe it will be granted by all practical farmers, that in ſuch a climate as ours, no ſcheme of cropping can be deviſed for wet ſoils, that can render them ſo beneficially produc-

tive as with the aid of ſummer fallow. I ſhall therefore proc to give you my thoughts on the proper treatment of it.

It is now pretty generally acknowledged, that the firſt f row ſhould always be given to ſummer fallow, either in courſe of the winter, or as early in the ſpring as poſſible; there is not only a riſk of not getting it done without extre difficulty, if deferred till the ſummer drought ſets in; or if, that time, a ſteeping rain ſhould allow us to get it done m eaſily, yet the farmer will always find it a far more operoſe b neſs to eradicate root-weeds ſo effectually, when the firſt fur is long delayed, than when the land has been previouſly expc to the winter or ſpring froſts. It may not be improper to ſ here, that it is of no ſmall conſequence for facilitating the ture operations with regard to ſummer fallow, that the firſt f row ſhould not be given when the land is too wet. When ridges are in ſuch a ſtate as to admit of a gathering for the furrow, I think it is highly expedient to gather them, inſtea cleaving, the ordinary practice; as the land is thereby both up in ſuch a way as to receive moſt benefit from the froſt, is likewiſe in the very beſt ſituation for receiving the ſecond row, which ſhould be a cleaving. But, previous to its get this ſecond furrow, if the land is ſubject to annual weeds will be proper to give it a harrowing, to encourage a brairc them, which will be got very quickly early in the month of M the uſual, as well as the beſt time, for this operation. For ſame purpoſe, it will be neceſſary to harrow again immedia as it gets the ſecond furrow, in order to cloſe in as much m ture as will facilitate another braird of annuals. Theſe op tions ſhould, if practicable, be all deſpatched by, or before end of May; and the beginning of June ſhould be devotec the third furrow, which ſhould invariably be acroſs the rid Immediately after this, (for no time is to be loſt at this im tant period for fallows), the breaks, harrows and roller, ſh be vigorouſly exerciſed, in order to cruſh the clods, bring to ſurface, and ſhake out the couch graſs and other root-we which, in ordinary ſeaſons, it will be proper to pick up care ly, and carry off the field. I ſay, ordinary ſeaſons; for I l frequently witneſſed ſuch a ſevere drought at that time of year, as quickly to deſtroy the vegetating power of thoſe r weeds, and thereby to preclude the neceſſity of carrying t off. But, generally, picking ſhould not be neglected. W the land has undergone all theſe operations, the next fur ſhould be a gathering; after which, another harrowing ſh be given along the ridges, as croſs-harrowing would bring root-weeds too much into the furrows, where they would

t

ſnug, and be apt to take root quickly. If the breaking and rolling have been liberally beſtowed after the croſs-ploughing, there will be ſeldom much occaſion for the latter implement after the fourth furrow; but, ſhould graſſy clods make their appearance, the roller muſt be applied to them, and another harrowing afterwards to ſhake them aſunder. In good fallowing ſeaſons, the land may now be ſuppoſed in ſuch a ſtate, as to be fit for the reception of the dung: but, in my practice, I have for the moſt part found it neceſſary to plough again before dunging; and muſt confeſs, I have been ſometimes at a ſtand in what manner to plough the ridges for the fifth furrow. When they are no more rounded than what we would reckon needful after the ſeed-furrow, a cleaving would flatten them to ſuch a degree, that a ſucceeding gathering would not round them again ſufficiently. In which caſe, I have therefore generally preferred ploughing acroſs, which operation brings ſo much earth into the furrows, even of ebb ſoils, as to render them fit to bear another gathering. After this croſs-ploughing, perhaps the ſeaſon may be ſo far advanced, that it will be adviſeable to water-furrow; and a ſlight harrowing being given, a plough ſhould go about in every crown of the ridge, and ſplit it out; which will ſerve the double purpoſe of guiding the horſes ſtraight along with the dung-cart, and, if the ploughmen underſtand their buſineſs, of preventing the crown of the ridge from being raiſed ſo high as to endanger the throwing out of the wheat plants by the March froſts. Expedition ſhould at all times be attended to by the farmer, ſeeing ſo much depends upon it; but it is peculiarly needful, in getting out the dung to the fallows when in a dry ſtate. It is ſcarcely leſs needful to procure a ſufficient number of ſpreaders to keep up with the carts; for the ſpreading never goes on ſo well when the dung is left to ſettle in the heaps. In a farm of proper extent, there is generally ſtrength enough for carrying on the dunging and ſeed-furrowing at the ſame time, which I reckon a great advantage; as the dung never covers in well but when new ſpread; and, beſides, when it lies long uncovered, I ſuſpect it loſes a good deal of its fertilizing qualities by exhalation. When the ſeed-furrowing is finiſhed, it will be needful to clear out the croſs and end furrows with a ſpade, that the land may not ſuffer by ſtagnated water in caſe of heavy rains before ſowing. The commencement of the wheat-ſeed ſhould not, in my opinion, be too long delayed on wet ſoils, as many diſadvantages attend a late ſeed time; and eſpecially, now, when the growing of wheat in preference to any other grain, is ſuch an object to the farmer. According to my experience, about the middle of September, when the land is in proper order for its

reception, the wheat-ſeed may be depoſited with all manner of ſafety; and I think the farmer who has much wet land, does not rightly conſult his own intereſt, if he neglects to begin ſowing about that time, when the weather is favourable and his land properly prepared.

I have not the vanity to think, Sir, that there is any thing in the letters which, occaſionally, I do myſelf the pleaſure of ſending you, but what is well known to many of your readers; but as you have a great number of readers, perhaps ſome of them may receive information from what I have communicated. At any rate, if you think them worthy of admiſſion, I do not grudge the trouble of writing them, as I find amuſement in it.

I remain yours, &c.

Eaſt Lothian, February 13th 1805. ARATOR JUNIOR.

P. S. Since writing the above, I have obſerved in your laſt Magazine, an invention deſcribed and recommended for harrowing wheat land in a wet ſeed-time without poaching it. I have no doubt but ſuch an invention may be uſed with advantage, particularly when we are overtaken with a ſoaking rain in the time of harrowing a field; ſo that it may be utterly impracticable to cover the ſeed in the ordinary way without great injury to the land. But, except in this caſe, I am of opinion it ſhould be cautiouſly recommended. Let every nerve be exerted to get forward the ſowing of wheat when the land is in proper trim for it; but I have little heſitation in ſaying that, where the climate is favourable to the ſowing of ſpring wheat, it would be almoſt invariably better, to defer it till that ſeaſon, than to ſow it when the land is ſo wet as that the ordinary mode of harrowing would not fill up the horſes footſteps.

Both from experience and obſervation, I think I am warranted to ſay, that impatience to get the intended quantity of wheat ſown, very often induces people to ſow in ſuch unfavourable circumſtances as to have a bad effect, not only on the crop of wheat, but alſo through the whole rotation of crops. I ſhall be happy to ſee your opinion on this ſubject expreſſed in your next Number.

NOTE BY THE CONDUCTOR.

Without recapitulating or enforcing the arguments of our ingenious correſpondent, who evidently appears poſſeſſed of ſound agricultural knowledge, it is our duty to ſtate, that the neceſſity of ſummer fallow on heavy ſoils, has rarely been diſputed by any one who laid claim *by his actions* to the character of a good farmer. Superficial agriculturiſts have denied its utility. Mr Arthur

Arthur Young and many others have written againſt it, but without making much impreſſion on the public mind. In ſhort, the moſt of practical farmers are ſatisfied that there is rather too little than too much ſummer fallow in Great Britain; and with this opinion we decidedly concur.

It is hardly neceſſary to ſay, that the directions given by our correſpondent for executing the different proceſſes of ſummer-fallow are ſound and judicious. In fact, upon the attention ſhewn to this radical operation, depend, in a great degree, the ſucceſs of all the crops in the ſubſequent rotation N.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Letter from the Honourable Baron Hepburn.

SIR,

IT is now nearly thirty years ſince I was appointed a member of a committee, to conſider the corn laws, by a numerous and reſpectable meeting of the landed intereſt of Scotland, then held at Edinburgh.

This committee met frequently, and they had alſo ſome meetings with a committee of the mercantile intereſt ſent from Glaſgow. I found ſuch variety of opinions held by the ſeveral members of theſe committees, reſting upon what appeared to me ſanciful and unſatisfactory theories, and ſuch a meagre gleaning of facts, that I was induced to ſearch in a different path for information; and I went to the ſtatute book for the laws relating to corn, and to our older hiſtorians, to explain the probable inductive cauſe of theſe laws, where, as generally was the caſe, the preamble of the older ſtatutes was ſilent upon that point; I found that theſe ſtatutes prohibited the exportation of corn, with only one exception in the year, I think, 1329; and that every ſuch prohibitory ſtatute, was preceded by a recorded dreadful famine, for which theſe monkiſh hiſtorians attributed ſome natural cauſe, ſuch as a ſevere froſt upon one occaſion, which laſted, as they ſaid, from Chriſtmas to Candlemas; another was the blaſting, or, as they ſtated, the burning of almoſt the whole growing crops by lightning, or ſuch like. I did not exactly adopt the cauſe; but the fact of famine having actually occurred, I think they could not be miſtaken in. I collected and combined the ſtatutes and the facts, and, from theſe united, I drew ſuch concluſions as ſeemed to me juſtly to ariſe out of theſe premiſes, principally for the information of a relation of my own, who then was a member of the Houſe of Commons. Theſe concluſions led to a very different ſyſtem of law, than the theory of Dr Adam Smith, enforced, as it was, by the ingenious, ſmooth, inſinuat-

ing, I had almoſt ſaid bewitching, eloquence of that diſtinguiſhed author. I never gave them to the public, nor indeed prepared them for the preſs. You may probably recollect having peruſed theſe notes, as they were by Sir John Sinclair and others, many years ago. But my worthy friend, Mr Charles Grant, now deputy chairman of the directors of the honourable Eaſt India Company, was here ſome few years paſt, when the corn laws accidentally became the ſubject of our converſation, and I gave him my notes for the purpoſe of ſhewing them to any of his friends who had turned their mind to that ſubject; he ſhewed them to Mr Thornton, while writing his inſtructive pamphlet on paper credit, which he ſoon after gave to the public; and he requeſted, as Mr Grant wrote me, that I would publiſh my notes; but this I declined, as not prepared for the preſs. Recently after, I wrote Mr Grant to return them, as I obſerved ſomething that pointed to a freſh diſcuſſion of the ſubject in Parliament. After ſome delay, Mr Grant wrote me, theſe notes had paſſed from Mr Thornton to Mr Wilberforce, who had miſlaid them, and I have never ſeen or heard more of them. But after much ſearch among my old papers, I found the greateſt part of my original notes about ten months ago; I had them recopied, and they are now in England with a nobleman who has equally diſtinguiſhed himſelf in the field and in Parliament; but, at your requeſt, I now ſend you the outline general reſult of them, from memory, which, if they meet your ideas, you may inſert in the Farmer's Magazine under your charge; and if you ſhall wiſh for any further information on the ſubject, that theſe notes can furniſh, you ſhall ſee them when returned to me.

I remain, your obedient humble ſervant,

Smeaton, 23*d March* 1805. GEO. BUCHAN HEPBURN.

An Outline View of the Corn Laws, with their Cauſes and Effects.

Priſci conſcius ævi. VIRGIL.

THE due conſideration of the corn laws, and the principles upon which they are grounded, embrace a great number of the moſt important national objects, and require a more extenſive range of diſcuſſion, than the writers on either ſide of the queſtion ſeem to me diſpoſed to allow.

The great points at iſſue betwixt the contending parties, may be condenſed into theſe two queſtions, Shall we have at all times a free open trade in corn, without bounty upon exportation, and without reſtriction as to importation from foreign countries? or, Is it more wiſe and ſalutary for the nation, that the export of corn in plentiful years ſhould be encouraged by bounties, and the importation of foreign corn prohibited and reſtricted to caſes

of

of neceſſity, that is, when the home produce of corn, from an accidental bad ſeaſon, threatens famine?

The argument for a perpetual open market in corn, as far as I have heard it, has been ſtated ſomewhat to this effect. If, by a bounty on exportation, the price of corn ſhall be artificially raiſed above the level it ought to bear with the other articles of food, or of manufacture, theſe, and the price of labour muſt, in a very ſhort period, riſe alſo in their price, until they ſhall reach their former relative juſt level; and, conſequently, the relief to the huſbandman will be only temporary, and it muſt ultimately prove, even to him, unavailing and deceitful.

Without entering here into the queſtion at iſſue betwixt the late Dr Adam Smith and Lord Lauderdale, Whether the price of labour ſhall be conſidered the ſtandard of value? I ſay, that this reaſoning, however ſpecious it may appear at firſt ſight, does not touch the caſe; and in order to make it bear upon it, the juſt level that corn ought to hold in the market to the price of labour and other manufactures, ought to be fixed; and then, as an axiom, it may be founded upon in the ſubſequent reaſoning. We have ſeen, of late, ſuch terrible fluctuation in the price of corn, that I think it abſolutely impoſſible that the manufacturers, the diſtillers and the brewers, on the one ſide, or the huſbandmen on the other, can ever meet or agree upon this relative value; and, further, I am of opinion, that impartial and wiſe men, who wiſh to hold the ſcale of juſtice upon a juſt and equal balance betwixt theſe two parties, which certainly is the great object of the legiſlature, muſt ſtill find it equally difficult to ſettle upon a juſt and ſatisfactory criterion: from fancifully aſſumed premiſes no ſound concluſion can ariſe.

Beſides, as one of the great objects in view, by encouraging the exportation of bread corn by a bounty in plentiful years, is to preſerve the juſt and proper balance betwixt the manufacturer of corn, and the manufacturer of cloth, I ſhall endeavour to illuſtrate how the bounty operates to produce this effect, by the following example. Allow me to ſuppoſe that the average yearly conſumption of bread corn is 12, and that the average yearly produce is alſo 12, and, laſtly, that the fair price betwixt the two manufacturers is likewiſe 12, and that when the manufacturer of corn gets this price, he is reaſonably paid for his manufacture; while, at the ſame time, all the other manufacturers, and indeed the whole community, have a ſufficient ſupply of bread corn at a fair and reaſonable price. Now let me ſuppoſe that a plentiful ſeaſon ſhall produce 15 of bread corn,—it ſeems perfectly obvious, that without an exportation, the ſurplus produce of the 3 above the an-

nual conſumption of 12, is to the ſtate ſuperfluous, and to the induſtrious huſbandman it proves a grievous and a ruinous burden; he has one fifth more bread corn to diſpoſe of, than the nation can conſume; of courſe, there are more ſellers of corn than there are buyers; and the market is glutted by this ſurplus quantity which the huſbandman preſſes to get off his hand; which ſinks the price, and, in place of getting 12 for his 15, he gets only 10 for it.

In the ſequel, I ſhall appeal to unqueſtioned authorities to prove, that this is not a theoretical caſe, but one that, in fact, has actually and repeatedly occurred in this iſland: and now, to follow out my caſe, I appeal to the judgement of every man of underſtanding and of candour, whether the huſbandman, conſidering him merely as a manufacturer of corn, will not immediately abate his ſowing for the next crop; and I think too, it is highly probable he will abate it even below the average produce of 12; and ſuppoſe ſuch an unfortunate year ſhall follow as we lately experienced in the year 1799, and that the produce of bread corn ſhall be reduced to 9, then ſcarcity and famine follow the next year, immediately on the back of ſuperabundant plenty.

On the other hand, I ſhall ſuppoſe that the bounty had operated and produced its deſired effect, and had induced the merchant to purchaſe the ſurplus three for exportation, whereby the huſbandman gained not 15 of price, but 13 only;—he is ſatisfied, becauſe he has gained a twelfth above his average return. But take notice, I beſeech you, of the great advantage which the reſt of the community, or the nation at large, would have acquired; the firſt is, that they would have been more cheaply ſupplied with bread-corn, by the offer of 15 at the price only of 13, before one buſhel could be purchaſed for exportation; and as they conſumed only 12, they got this 12 at the price, I ſhall ſuppoſe in round numbers, of 11. The advantages to the nation do not, however, ſtop here. Conſider the ſhipping that muſt be employed to tranſport this ſurplus produce of bread-corn to foreign countries; and as corn is a bulky commodity, the tonnage required muſt be conſiderable. One thouſand pounds worth of the cotton manufacture, can be conveyed acroſs the ſeas in one tenth of the tonnage that one thouſand pounds worth of corn muſt occupy. Calculate the exhilarating ſpring this ſmall ſurplus produce of corn muſt create in the various, I had almoſt ſaid the numberleſs departments of the ſhipping buſineſs,—run over in your mind, at one view, the ſhip-carpenters, the ſhip-caulkers, the ſail and rope-makers, the ſmiths for bolts and anchors, and many more,—conſider how this muſt operate in the quickened and increaſed demand for the raw materials that are to be worked up

by

by theſe various artificers,—conſider the balance of caſh which the price of this ſurplus produce of corn would have brought into the country, and, as this caſh would have been very generally diffuſed (for every huſbandman who had a quarter of corn to ſpare would have got his ſhare, and his wife and daughters would have gone to church on Sundays better clothed, which would have ſpread its invigorating influence far and wide over the land, this being the neceſſary conſequence of generally diffuſed wealth), it will be no difficult taſk to prove, that our preſent juſtly boaſted ſuperiority in manufactures, and the immenſe capitals now engaged in that buſineſs, flowed originally from the bounty given for exported corn, and in the wealth that that export returned to the nation: and 'laſt, though not leaſt in our eſteem,' conſider, in a political view, what would have been thereby added to the pride, the glory, and the bulwark of the nation, by the increaſed number of ſeamen theſe ſhips muſt require, while, at the ſame time, the huſbandman, elated with his ſucceſsful acquiſition of one twelfth of addition to his profit, would have returned to his plough rejoicing, with redoubled ardour and induſtry. Now, to make my argument concluſive on this point, let me ſuppoſe that the huſbandman expected, in the following year, to have produced 16, but the unhappy year 1799 comes and blaſts his hopes; ſtill, however, he would have produced his average of 12, becauſe his ploughing would have been increaſed: encourage the demand for any one branch of manufacture, and the ſtimulated induſtry thus created, will increaſe the produce. Even in this deſperate caſe, and I do ſay that the year 1799 was the moſt unproductive crop in bread corn, both in quantity and in quality, that I have known for more than forty years back; but, gloomy and depreſſing as that year certainly was, had the huſbandry of the nation been properly encouraged and cheriſhed, as it was immediately after the Revolution, which in the ſequel I ſhall notice, we ſhould even in that year have found our bread-corn within ourſelves, or nearly ſo, merely by ſtopping the exportation, which indeed would have ſtopt of itſelf. I ſhall, however, carry the argument a little further, and I ſhall take it for granted that crop 1799 was more than $\frac{1}{4}$ ſhort of the average of the expected return of 16, and ſay it was $11\frac{1}{2}$, ſtill we ſhould have wanted only one twenty-fourth part of our ordinary conſumption of bread-corn; but the frugal economy with which we fed ourſelves, and ſparingly dealt out that $11\frac{1}{2}$, like ſailors on ſhort allowance at ſea, it would have fed us for more than twenty-three parts of the twenty-four, and we would not have wanted a greater ſupply than perhaps for one week, if ſo much, before the next crop would have arrived to our relief.

Compare

Compare this picture of what we ought to have been, with the actual ſituation in which we really found onrſelves during the greater part of the following year,—when, impelled by the fear of want, we ſwept the floors of every granary in the known world: from Europe we went to America, to Africa, from whence we brought wheat like flints, which our beſt grindſtones could hardly reduce into meal; and, laſtly, we went to Aſia, from whence we brought the coarſeſt *paddy* rice, which our people could not eat, and which only the pooreſt and loweſt claſs of Hindoos ever touch in India, and which did not arrive, at leaſt by far the greater part of it, until the new crop had cheered our hopes and baniſhed our fears. I blame not the miniſters of that day for theſe meaſures; on the contrary, when I conſider the general and the high ſtate of alarm that then agitated, I had almoſt ſaid convulſed the country, I ſay, that theſe miniſters acted with their uſual and becoming energy; and they were called upon 'to leave no ſtone unturned' to quiet the general terror of the nation, and to remove their dreadful apprehenſions of famine, although it was done at an enormous expence. John Bull, although a very honeſt, good gentleman, is ſoon alarmed when his belly is brought into the caſe. I believe I ſpeak within bounds when I ſay, that the crops 1795 and 1799 coſt this nation ten millions of money, when leſs than one million would have ſupplied all our wants, had we been then differently circumſtanced with regard to agriculture.

I am well aware many perſons will tell me, that I have adopted a more fanciful theory than any one I have endeavoured to combat. I ſhall therefore proceed directly to ſtate the facts upon which I reſt my propoſition; and theſe facts ſhall be principally collected from our ſtatute book, or grounded upon hiſtorical evidence.

If my memory does not much miſgive me, I think I might appeal to *Suetonius* to prove, that *Britannia Romana*, or the Roman province in Great Britain, was conſidered to be one of the corn countries from whence the Romans drew a regular ſupply of bread-corn for their armies, and occaſionally to Rome herſelf, when the crops of Sicily and Africa failed to yield their regular ſupply; but, independent of this, upon the authority of the Rev. Dr Henry I ſtate, that England, while governed by the Saxon princes, was an exporting country of corn; and it well becomes the people of England to ſpeak with reverence of thoſe men, many of whom were good and wiſe, and hardly one of them tyrannically wicked and miſchievous to their ſubjects.

The long reign of Edward the Confeſſor, in whom that race became extinct, may be conſidered the halcyon days of England; and, perhaps, were it germain to my preſent object, it would not be

be a difficult taſk to eſtabliſh, by preſumptive evidence, that England, towards the cloſe of that reign, was in a ſtate of more generally productive cultivation, and not much leſs populous than it now is. Examine the map of *Britannia Romana*, you will find it covered with villages and townſhips, without chaſes, commons, or extenſive deer-parks. In the days of Edward, the predatory invaſions of the Danes had ceaſed for nearly half a century. England, at that period, had no remote countries to colonize and people, and no foreign wars to wage; the ſteady, mild government of Edward had eſtabliſhed quiet, good order and ſecurity over the land. And do reckon the number of towns and villages that Rufus afterwards depopulated, to form what is ſtill called 'The New Foreſt,' merely to gratify his heedleſs rage for hunting; and ſome general idea may be formed of the population of England in the reign of Edward the Confeſſor: at the ſame time I am aware, that in the reigns of ſome of his predeceſſors, England, while agitated by the Daniſh invaſions, was frequently diſtreſſed with ſevere famines of bread-corn; and, even in the earlier part of his own reign, our hiſtorians mention more than one year of ſcarcity.

In the year 1066, William the Conqueror eſtabliſhed himſelf on the throne of England, and he, like moſt tyrannical uſurpers, conſcious of want of right and title, adopted the cruel policy of keeping by terror what he had acquired by violence: he ſoon nearly extinguiſhed the ancient Saxon nobility, who protected and cheriſhed the great body of the people, and he encouraged his Norman barons in every act of oppreſſion and depreſſive conduct to them: his ſon Rufus followed the baneful example of his father; and with them begins the hiſtory of famines, and ſtatutory prohibitions againſt the exportation of corn, and occaſionally of every ſpecies of proviſions, even to ſalted herrings.

Theſe prohibitions occaſioned a moſt aſtoniſhing fluctuation in the price of bread-corn. For example, in the year 1266, wheat ſold at 3s. 1d. of our money per quarter,* and, only four years afterwards, viz. 1270, it roſe to the enormous price of 19l. 16s. 9d. per quarter.

It muſt be obvious, that the low price of the year 1266 muſt have ſo completely diſpirited the huſbandman, (for he could not raiſe a quarter of wheat for 3s. 1d.), that he muſt have abandoned the culture of it, and converted his arable land into paſture, eſpecially as wool was then an article of encouraged exportation; and this change, ſo fatal to the country, having been ſucceeded by a very bad year, was the ſole cauſe of the dreadful famine that in four years

* *Vide* Inquiry into the Price of Corn, &c. from the Conqueſt to 1765.

years thereafter afflicted the nation; and as the intereſt of money was then about, or rather above, 40 *per cent.*, the calamity muſt have been dreadful.

If the exportation of wheat had been encouraged in 1266, it is highly probable the price might then have been about 10s. per quarter, which, from the great number of quarters the huſbandman brought to market, would have paid him fairly, and the country fed plentifully and at a reaſonable price; and the famine in 1270 would have been in a great meaſure averted, from the increaſed agriculture with a view to exportation; for it is only the ſurplus that ever is or can be exported.

I could eaſily mention, from the authority I have referred to, many other inſtances of the fluctuation in the price of wheat, as the exceſſive price immediately gives a freſh ſpring to agriculture; for the huſbandman quietly, although ſteadily, turns his grounds to that ſpecies of produce that, in his opinion, will pay him beſt: but this ſeems at preſent unneceſſary, and would lead me to occupy more pages of your uſeful Magazine than any one of your correſpondents has a right to expect; and I am anxious, while the lively impreſſion of this ſtriking, though ſhocking example, muſt be ſtrongly felt by every candid reader, to eſtabliſh, by irrefragable proofs, that what I have juſt ſaid, of it being highly probable that the exceſſive low price of 1266 had led to the abandonment of huſbandry, was actually and truly the fact.

The evidence of this deciſive and convincing fact is to be found in the ſtatute book, from the reign of Henry the Seventh down to the reign of Queen Elizabeth, which comprehends a period not much ſhort of two centuries. The ſtatutes I allude to in theſe ſeveral reigns are generally entitled, or bear a reference to, *Decayed Houſes of Huſbandry.*

I ſhall inſert one in the reign of Henry the Seventh, becauſe it is not given in its place by Roughead; but it is printed in his Appendix, merely, I imagine, as a curious and ſingular hiſtorical fact. I beg leave, however, previouſly to obſerve, that it ſeems probable that more than one cauſe operated to occaſion the decay of houſes of huſbandry in his reign. The ſucceſsful battle he fought with Richard the Third on Boſworth Field, in which, as Baker ſtates in his Chronicle of England, above 36,000 Engliſhmen were ſlain, placed him on the throne of England; and his ſubſequent marriage with the ſurviving female competitor for the crown conſolidated his doubtful right.

The bloody devaſtating wars which, for a period of about 30 years, had convulſed England, may perhaps have led in ſome degree to the decay of huſbandry: for, while the grazier and the breeder of ſheep and cattle can fly and remove his ſtock, and

place

place it out of the reach of an army, the unfortunate huſbandman has no ſuch reſource; his ſtack-yard and his crop on the ground muſt, unhappily for him, remain; and they become the ready prey equally of friend or foe: he, of courſe, is the firſt to ſuffer, and the laſt to recover the fatal effect of foreign invaſion, or of internal convulſion.

This ſtatute and its title are in theſe words: 'The penalty for decaying of houſes of huſbandry, or not laying of convenient land for the maintenance of the ſame.'

'*Item*, The King, our Soveraigne Lord, having a ſingular pleaſure, above all things, to avoide ſuch enormities and miſchiefes, as be hurtful and prejudiciall to the common weale of this land, and his ſubjects of the ſame, remembreth that, among all other things, great inconveniencies daily doe increaſe, by deſolation and pulling down, and willfull waſte of houſes and townes within this realme; and laying to paſture, lands which cuſtomably have been uſed in tillage, whereby idleneſs, which is the ground and beginning of all miſchiefes, daily doeth encreaſe. For where, in ſome towns, two hundred perſons were occupied, and lived by their lawfull labours, now there are occupied two or three heardmen; and the reſidue fall into idleneſs; the huſbandrie, which is one of the greateſt commodities of this realme, is greatly decayed; churches deſtroyed; the ſervice of God withdrawn; the bodies there buried not prayed for; the patrons and curates wronged; *the defence of this land againſt our enemies outward, feebled and impaired*, to the great diſpleaſure of God, to the ſubverſione of the pollice, and the good rule of this land, if remedie be not provided: Wherefore, the King, our Soveraigne Lord, by the advice of the Lords, Spiritual and Temporal, and the Commons in the ſaid Parliament aſſembled, and by the authority of the ſame, hath ordained, enacted, and ſtabliſhed, that no perſon, of what eſtate, degree, or condition that he be, that hath any houſe or houſes, that at any time, within three years paſſed, hath beene, or that now is, or that hereafter ſhall be lette, fore ferme, with twenty acres of land at leaſt, or more, lying in tillage and huſbandrie, that the owner and owners of ſuch houſe or houſes and land doe keepe, ſuſtaine, and maintaine, houſes and buildings upon the ſaid ground and land, convenient and neceſſarie for maintaining and upholding of the ſaid tillage and huſbandrie: And if any ſuch owner, or owners, of any ſuch houſe or houſes and land, take land and occupie any ſuch houſe or houſes, and keepe in his or their owne hands, that the ſaid owner, or owners, by the ſaid authoritie, be bound in like wiſe to keepe in tillage and maintaine houſes and buildings upon the ſaid ground and land, convenient and neceſſarie for the maintaining and upholding of

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the ſaid tillage and huſbandrie: And if any man do contrarie to the premiſes, or any of them, that it be lawful to the King, if any ſuch lands or houſes be holden of him immediately, or to the lords of the fees, if any ſuch lands be holden of them immediately, to receive yearely half the value of the iſſues and profits of any ſuch lands, whereof the houſe or houſes be not ſo maintained and ſuſtained: And the ſame halfe deale of the iſſues and profits to have, hold, and keepe to his or their owne uſe, without any thing thereof to be payed or given, till ſuch time as the ſame houſe or houſes be ſufficiently builded or repaired againe: And that no manner of freehold be in the King, nor in any ſuch Lord or Lords, by the taking of any ſuch profits, of or in any ſuch lands, in no manner of forme: But onely the King, and the ſaid Lord or Lords, have power to take, receive, and have the ſaid iſſues and profits, as is above ſaide; and therefore the King, and the ſaid Lord or Lords, to have power to diſtraine for the ſame iſſues and profits to be had and perceived by them, in forme above ſayde, by authoritie of this preſent acte.'

Although I have ſaid that the civil wars betwixt the Houſes of York and Lancaſter may have partially operated in cauſing a more rapid decay of huſbandry, as far as the ravages of war extended, ſtill the ſtatute gives no hint of this; and as more than 40 years had elapſed from the cloſe of theſe wars and the date of them, new capital might and probably was acquired, although applied in a different channel: and a ſtatute in the reign of Henry the VIII. diſtinctly proves this: for, in its preamble, Parliament complains that there were flocks of ſheep that contained no leſs than 26,000, the property of one perſon; and enacts, that no man thereafter ſhould keep above 3,000 breeding ewes.

The object of this ſtatute ſeems to have been twofold: One avowed was, that theſe extenſive flocks had created a monopoly, and had raiſed the price of ſheep from 5s. to 8s. I think. I ſpeak from memory, and may not be perfectly correct. The ſecond ſeems to have been, to compel theſe overgrown monopolizers of land not to leſſen their farms in point of extent, but to turn a portion of their immenſe capital, now all veſted in ſheep, into huſbandry; but this laſt object failed of ſucceſs: for the ſtatute book, in the ſucceeding reigns, contains various penalties enacted by Parliament againſt allowing houſes of huſbandry going into decay, down to the beginning of Elizabeth; and the laſt one invented was, authoriſing heirs of entail, when they found ſuch houſes deſerted upon the eſtate to which they were heirs, to ſeize theſe houſes, and the lands formerly connected with them, and to cultivate them for their own ſole behoof, as if the ſucceſſion had actually opened to them: But this proved equally ineffectual, and

and it could not but prove ſo; for if the entailed proprietor could not preſerve the houſes and cultivate the lands without loſs; that is, if the exceſſive low price of the produce could not pay him for the expence of ſeed and labour, his next heir would not have found himſelf in a better ſituation, if he had aſſumed the poſſeſſion.

This led to ſome change in the ſyſtem with regard to corn, which I ſhall not at preſent detail: but it would ſeem to have produced a good effect; becauſe, in a ſubſequent reign, a tax upon corn exported ſeems to have been one of the *ways and means* for raiſing the revenue, or perhaps, from a blind and miſtaken policy, it was meant as a cover to check the exportation of corn.

At the reſtoration, Parliament gave great attention to the buſineſs of corn; and by a wiſe and prudent policy, they laid a very ſmall duty, ſay 2d. per quarter, on corn imported, to aſcertain the average quantity of foreign corn the nation actually ſtood in need of. And finding, after nearly 20 years of experiment, that England, gradually as it recovered the ſhock of the grand rebellion, required leſs and leſs of foreign aid, the Parliament laid a heavy tax upon foreign corn imported, and introduced the bounty upon the exportation of corn, upon this principle of ſound and enlightened policy, that, if the huſbandman was inſured of a fair price for any quantity of corn he could raiſe, however great it might be in plentiful years, by means of encouraged exportation of the ſurplus beyond our home conſumption, the nation had juſt ground to expect, that, in bad and unproductive ſeaſons, we ſhould have enough of bread-corn for our own uſe. For example, the year 1740 was, upon the authority of our fathers and grandfathers, the moſt unproductive year in the memory of either; yet the total importation of foreign corn in that year did not amount to 150,000 quarters. In ſhort, if the huſbandman was certain of receiving 13 for 15, as in the caſe I formerly put, the ſurplus fifth remained a reaſonable ſecurity againſt our produce ever being reduced below 12.

That this happy event did actually take place, is an unqueſtioned fact; and I do poſitively aſſert, without the fear of contradiction, that for a period of about ſeventy years after the bounty begun to operate, *1ſt*, That the nation had a more plentiful ſupply of bread corn; *2dly*, That at an average it bore a lower money price than it had been for the ſame period before the bounty was granted; and, *laſtly*, That during theſe ſeventy years, taking them at an average, the export of corn returned yearly to the nation fully half a million of money. It is a fact alſo, that, at a very early part of that period, the intereſt of money was reduced from 7 *per cent.*, which Charles the Second always paid, to 5 *per cent.*, and during the whole of it money generally was borrowed

borrowed at 4 *per cent.*; or, at the leaſt, during the laſt half of that period, and until I ſhall be better informed and inſtructed, I ſhall hold that this diminiſhed value of money aroſe from the ſudden and unexpected influx of ſo large a ſupply which the export of corn produced in the land; and, 2*dly*, that this plenty of money was the life and ſoul of our increaſed commerce, and of our now juſtly boaſted manufactures. It was the produce of our ſurplus corn that firſt filled the coffers of the ſtate, and it was the want of corn that latterly drained them. The two millions that in the 1795 we paid to the Americans for corn, intercepted and afterward detained, and the ſix millions (I believe I am near the ſum) we paid for foreign corn, and for bounties to foreigners to fetch it, in the year 1796, was the ſole cauſe of the ſtoppage of the iſſue of ſpecie by the Bank of England. The foreign ſubſidies we paid were a mere drop in the ocean; and, to prove this, look at the foreign ſubſidies that were paid in the wars of King William and Queen Anne, and of George the Second, and ſay if the nation ever felt the ſmalleſt ſhock from them; and to this allow me to add the vaſt ſums we ſent abroad to pay our armies in the American war, which ended, fatally for them, in their emancipation, and, I am much afraid, may ultimately prove injurious to Great Britain. Beſides, the money given in ſubſidies reſembles the pigeons in a dove-cot; they fly out every morning to feed, but they return to it again before night; and, like them, our ſubſidies came immediately back to Great Britain for clothing, ſhoes, &c. &c. for thoſe warriors our ſubſidies had drawn from their peaceful awls and looms to fight our battles; and the guineas ſent to America during that war were moſtly returned to Great Britain with the fleets that brought home our unſucceſsful armies; and in two or three years our manufactures recovered the whole of our treaſure, and brought it back from the Tranſatlantic world. But not ſo is the caſe with money paid for foreign corn: a million of Britiſh money, thus ſpent, ſuffers ultimately an almoſt infinite ſubdiviſion among the foreign huſbandmen growers of that corn, who live far and near from the exporting harbours, and generally hoard it in hard caſh; and even the ſmall portion of it that they may circulate in the interior perhaps of Poland, or in countries more remote, requires years and years before it travels back to the coaſt, and forms an aggregate to be returned as a balance to Great Britain. Buy no foreign corn, and the balance of trade will for ever be in our favour. Conſider that ſixpence, perhaps eightpence of every ſhilling a day-labourer earns, goes for food to himſelf and his family, and ſuppoſe ¼ of either of theſe ſums ſhall be required to be ſent abroad to purchaſe foreign corn, I wiſh to be informed by perſons more

competent

competent to answer this question, How will the balance of the trade of Great Britain stand at the end of each year?

Let these persons ponder and consider well only one trifling *item* that must enter into this account, and that is, the expence of freight for this foreign corn. Very little of it can be imported as a back freight; for 10,000l. worth of corn will require more tonnage to fetch it to Great Britain than 100,000l. worth of cotton cloth will require to carry it to the foreign market. Let them take notice also, that although our manufactures certainly do amount to many millions yearly (and it is a proud thing to say so), still Great Britain, like Mother Cole, is her own best customer. She, by her 'own dry' wearing, consumes little short of $\frac{9}{10}$ths of the gross produce of the British manufactures.

The manufacturers of Great Britain certainly form a numerous and respectable branch of the population of the kingdom, and they possess an unquestionable title to have their just rights and interests investigated and protected, and they are so; and, laying the *quondam* commercial treaty with France out of the case, I believe no finished manufacture can be imported from foreign countries into this kingdom. I cannot import a pair of ready-made shoes, or a great coat, from a foreign nation, although I could wear both at half the price I must pay for each to my next door neighbour.

I do not ask, nor do the husbandmen of Great Britain expect, or even wish, a protection so broad and extensive in favour of their manufacture of corn. For example, and take the case that now nearly exists in point of fact—The kingdom of Spain is reported to be at this moment on the eve of absolute famine, (I do not exactly know the price that bread corn actually does fetch in the Spanish market, but I shall suppose it now to be five times the price that it is in the market of Great Britain, or, in round numbers, that a quarter of wheat which now fetches 100 shillings in Mark-Lane, would fetch 500 shillings in the Spanish market; and suppose war out of the case); it is against first principles of public policy to allow British wheat to be sent to the relief of Spain, however amply it would pay for the carriage there, as the consequence would be, to raise the price in the British market to 200, or perhaps 300 shillings, that is, to a dearth price. Still, however, this would be the consequence that unavoidably must result from a market perpetually free and open for the import and export of corn; and this, in fact, is the case at this moment, in so far as regards export, as to every other manufacture, corn only excepted: and in no possible case will a cloth-merchant sell me a coat one halfpenny cheaper than he can sell it for in Spain or in America, taking into the calculation all his *drawbacks* upon the act of exportation.

If I ſhould prove that theſe *drawbacks* are denominated wrong by this negative expreſſion, and ought to be called *poſitive bounties*, he might perhaps bluſh a little. I ſhall not therefore at preſent enter upon that point; but, in my former practice at the bar, I have ſucceſsfully maintained a much more queſtionable caſe.

All that the huſbandman now aſks, (and pardon the expreſſion, that conſidering him merely in the light of a manufacturer he has a right to demand), is, in the *firſt* place, the excluſive poſſeſſion of the Britiſh market for Britiſh corn, while he can ſupply it plentifully and at a fair and reaſonable price; and, *ſecondly*, that a *drawback* ſhall be allowed for ſending the ſurplus, above what the home market can conſume, to a foreign market.

I am in the judgement of every candid reader if either of theſe claims are unreaſonable or unjuſt. It may however be aſked, what I mean by a *fair and reaſonable price*. I admit that the expreſſion is too indefinite to convey to the mind a diſtinct and accurate idea: it is therefore a home and a proper queſtion; and to it I anſwer, that there can be only one ſcale by which a fair and reaſonable price for corn can be adjuſted, in the fluctuating medium of pounds ſhillings and pence. The pivot upon which this ſcale muſt reſt, is a matter of fact that can be very eaſily and correctly fixed. We can without difficulty find when the halcyon days of Great Britain once exiſted, that is, when the people in this iſland were plentifully and reaſonably fed with Britiſh corn, and the ſurplus, to the amount of half a million yearly, was ſent to a foreign market;—I ſay, let us find the relative price that Britiſh corn bore to the price of labour, and to the price of cattle, horſes, and ſheep, wool, cheeſe, butter, &c.—In ſhort, put huſbandry and the plough againſt paſture and its produce; find the relative proportion that the price of the former bore to the latter in thoſe days; and, having found it, ſquare your *bounties*, (I return to the old expreſſion to avoid offence), your protecting prices againſt import, nearly in that *ratio*, and reſt aſſured that the Britiſh huſbandmen will feed the whole inhabitants of the iſland with Britiſh corn at a *fair and reaſonable price*. If any other rule ſhall be adopted, corn will not be produced. Huſbandmen, although not ſo expert at calculating the rate of exchange betwixt Great Britain and foreign nations as the other manufacturers who ſend their manufactures to thoſe nations, are not leſs attentive and quickſighted to their own fair intereſt; and if corn ſhall not pay them as well, and make as good a net return as the produce of paſture, they will not plough; and the facts I have already appealed to, as recorded in the ſtatute-book, bear me out in this.

The

The huſbandmen of Great Britain reſt with confidence upon the wiſdom and firmneſs of Parliament; and they will not cumber the table of either Houſe of the Legiſlature with petitions on the ſubject, as the other manufacturers have done, with the mendicated ſignatures, or marks for the ſignatures, of thouſands, as if this highly important national queſtion was to be tried, not upon its merits, but according to the old Saxon law, '*Numeranda, non ponderanda.*'

Ridiculous, however, as this mode of trying the queſtion muſt certainly appear, it was ſuch a tumultuous hue and cry in the 1757, that laid the foundation of all the diſtreſs this nation has ſuffered by the repeated ſcarcity of bread-corn. In that year, the intereſted cry of want was ſo great, that the ports of this kingdom were ſhut againſt the exportation of Britiſh corn, and thrown open for the importation of foreign corn, by proclamation, when the actual ſelling prices of Britiſh corn in the Britiſh market, as fixed by the Revolution ſtatute, did not warrant either of theſe meaſures; and ſoon thereafter, the diſtilling was ſtopped by the ſame authority.

An act of Parliament indemnified the adviſers of theſe meaſures; but the confidence of the huſbandmen in the Revolution law was ſhaken, and ultimately it was totally unhinged.* They of courſe abated their ſowing; and from this ſource all our diſtreſſes have aroſe. The nation has always been ſcrimply fed, and at higher prices than formerly; and in the courſe of about twenty years, we imported nearly as much foreign corn as we had exported of Britiſh corn for the preceding ſeventy years; but the balance of caſh was much againſt the nation, as we paid nearly double the price for the foreign corn, that we had formerly received from the foreigners to whom we had ſold the exported Britiſh corn; and this muſt for ever be the caſe. The nation that depends upon foreign corn, unavoidably muſt pay, over and above the prime coſt, for commiſſion, freight, inſurance, granary-rent, the waſte and loſs by vermin, and the ſpoiling of corn. In ſhort, there muſt come ſuch an infinite number of people to be paid, betwixt the foreign grower and the Britiſh conſumer of foreign corn, and the riſks and the accidents are ſo various and complicated, all of which the conſumer muſt pay for, that the price of the quartern loaf produced from foreign corn, muſt be much higher than the price of the ſame loaf from home-growed corn, which travels only from the barn to the market, and then to the mill, and from thence to the baker who ſells the loaf. Take Holland as an example.

* *Vide* the Petition of the Norfolk farmers, in the 1759, to the Houſe of Commons,

'The nation was kept in a ſtate of conſtant agitation, by the fear of ſcarcity, for ſeveral years; and, unfortunately, none of the able men of the nation thought it an object worthy of their attentive inveſtigation, that is, neither the miniſter of that day, nor the leading men in the oppoſition, ever looked at it; and it was left to knights and ſquires of more humble note, ſuch 'good and true induſtrious knights' as Sir Walter Blount; till at laſt, about the 1769 or 1770, the late Governor Pownal took up the buſineſs with much pious ſincerity of intention, but with wonderful blundering ignorance in the execution; and by his act of Parliament, a deathblow was given to Britiſh huſbandry; for it conſtituted every county in the iſland a ſeparate and an independent kingdom with regard to the export and the import of corn. Even the ſmall iſland of Bute was raiſed to high rank and independence among theſe kingdoms; and more corn was exported from it, as Britiſh, and upon the Britiſh bounty, than it produced, take it altogether, from the flood of Noah to that time; but this corn had firſt been imported from Ireland upon the Iriſh bounty, or from America, and it was then ſent abroad again upon the Britiſh bounty; for it frequently happened, during that period, that one county was open for the import of foreign corn, when another, ſeparated from this county only by an ideal line, was open for the exportation of Britiſh corn upon the Britiſh bounty. Suffice it to ſtate one unqueſtioned fact,—that two merchants, who had notice of corn coming to them from America, and of the time it might be expected to arrive, and they finding the ports ſhut againſt importation of corn, contrived, over a bottle of wine with the Sheriff, in a tavern, and by a fictitious ſale, to open the ports; and the corn arrived ſoon after, and it was landed; and then the ports were again ſhut.'

I am aware, that many enlightened, upright men, do now entertain the opinion, that Great Britain cannot grow corn equal to its annual conſumption of that article, and that the importation of foreign corn has become a matter, not of choice, but of neceſſity, founded upon an alleged very material alteration of circumſtances, from a ſuppoſed wonderful increaſe of population, and more corn being now uſed in our manufactures, ſuch as ſtarch, diſtillery, &c. &c.

Theſe are propoſitions I am not diſpoſed to concede; but I ſhall not enter upon them at preſent, although I wiſh ſome member of either Houſe of Parliament would, in his place, move for an account of the duties paid upon ſtarch, and the drawbacks of theſe duties made to bleachers and other manufacturers who uſe ſtarch in their ſeveral manufactures, and the drawbacks, if any be, upon the exportation of Britiſh made ſtarch to foreign parts,

and

and alſo the quantity of foreign ſtarch, if any be, imported into Great Britain for theſe laſt ſeven years,—and the like motions as to ſoap. Some important facts may be found from an examination of theſe accounts.

Although I haſten to a concluſion, not to intrude too far upon your indulgence, I beg leave juſt to ſtate, that corn ought to be conſidered in a higher rank than any other manufacture, in two political views. The firſt is, that it is an article of prime neceſſity for the exiſtence of civilized ſociety; and the ſecond is, in reſpect to a robuſt and healthful population. Tacitus long ago diſcovered, and ſaid, 'Nullum opus recuſant manus, qui ab aratro ad arma transferuntur.' I wiſh the actual huſbandmen among your readers, in every different corner of the kingdom, would favour you with their ſeveral anſwers to the two following queſtions,—Have you known that your huſbandry ſervants, who have ſeveral ſons, do or do not generally breed one of theſe ſons to what, in this corner, is vulgarly called a TRADE, that is, to a profeſſion different from a ploughman or labourer? *2dly*, Whether any of theſe plough-deſcended manufacturers, or any other manufacturer, ever ſent any ſon back to the plough? As to the diſtrict within my own *ken*, I am ready to anſwer the firſt queſtion generally in the affirmative, and the ſecond almoſt univerſally in the negative; and if ſimilar anſwers ſhall be returned over the kingdom, it ſeems a ſafe concluſion, that the ſuperabundant population of huſbandry ſupplies the waſte of the human ſpecies occaſioned by other manufactures, and, of courſe, that a wantonly encouraged importation of foreign corn, while it encourages the healthful population of that country, gives a vital ſtab to the population of Great Britain.

Smeaton, 1805.

NOTE.

The CONDUCTOR remembers very well of having peruſed BARON HEPBURN'S original notes on the corn laws a good many years ago, which, ſo far as he can charge his memory, were wrote in 1784, after the effects of Governor Pownal's bill were diſcovered. As the ſubject inveſtigated by the Baron is of great importance, and as the opinions given in the above 'outline view' may probably occaſion ſome diſcuſſion, the Conductor refrains from making remarks in this early ſtage, though he means to ſtate his ſentiments fully afterwards.

N.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIR,

THE following sketch of turnip-husbandry, written for the use of a friend, is very much at your service, and may tend to amuse some, and perhaps instruct others, of your readers.

Wishing you and your valuable Miscellany many prosperous years,

I am, &c. *R. r.*

Berwickshire, 30th December 1804.

On Turnip Husbandry.

DEAR SIR,

To explain a long, and somewhat complicated process in agriculture, according to your desire, so as to be understood by one who is *no* farmer, and enable him to direct its execution tolerably, by farm-servants who have not been accustomed to it, is perhaps impossible: Yet the desire of a friend requires that it be attempted; and the following is meant to serve the purpose, to the best of the knowledge and abilities of its writer, who, not having been bred a farmer, shall endeavour to describe his own practice for the last eleven years, founded upon observation of what is done by his more experienced neighbours.

If the object of the inquirer be extensive, the best way for him to succeed in carrying these directions into execution, would be to get a set of the proper implements, which are not expensive, and a ploughman from Berwickshire, Teviotdale or East-Lothian, who knows their use, and is capable of executing the work. If the intended quantity of turnips be small, he may try his own ingenuity, and, in two or three years, may fall tolerably into the method of proceeding.

In addition to the common plough, harrow, and heavy roller, which are in general use, all the particular implements necessary for the turnip husbandry are, a double mould-board plough, a turnip drill-machine, and a horse-hoe, the uses of which shall be pointed out in the sequel.

1. The double mould-board plough is of two kinds. One of these, for forming and splitting the drills, has its mould-boards unalterably fixed, and is perfectly sufficient for the plan of turnip husbandry here recommended; though it will be seen afterwards, that even this is not absolutely necessary. The other has

has the mould-boards moveable, so as to fix at greater or less widths; and one of them especially made to take off occasionally, for particular purposes. After all, however, it will be seen in the sequel, that the double mould-board plough is by no means indispensable for the turnip husbandry, and that all its processes may even be better performed by the common plough. By this one, I would always be understood to mean the improved Rotherham, usually called Small's plough.

2. Turnip drill machines are of various descriptions, but may, for the present purpose, be limited to two kinds: One of these is a drill-box, with one or two wheels, for sowing a single drill only, and is always dragged after a light roller, which flattens the tops of the drills before sowing, and afterwards presses together the edges of the seed-slit opened by the coulter of the drill-machine: The other kind consists of a roller fluted transversely, which embraces two drills at once, in such a manner as to preserve its direction properly, and flattens the tops of both drills previous to sowing. Connected with it, behind the roller, are two drill-boxes, having each a coulter, sowing two drills at once; and having two light rollers behind all, to press together the sides of the seed-slits made by the coulters.

3. The horse-hoe or scraper resembles a mason's trowel, fixed below a light plough-beam, and having a wing at each side, capable of being set wider or narrower, according to circumstances. Its purpose is to cut over all the weeds, a little below ground, in the intervals between the drills of turnips; and it is sometimes furnished with a small wheel on the end of the beam, to regulate its depth, and likewise to rest it upon when turning.

All these implements are usually drawn by one horse, going in the intervals between the drills. They can all easily be procured from any cartwright in a turnip district.

The first thing necessary to be considered is the soil upon which the turnips are to be cultivated. That ought to be light and free in its own nature, and dry in its bottom or subsoil. If there are any springs, or spouts, or wet places, these ought to be previously and effectually underdrained, either after harvest, or in spring, during the intervals of the preparatory process to be hereafter described; for there is no crop whatever to which wetness is so injurious, whether from under-water derived from the soil, or from surface-water, occasioned by the retentiveness of the bottom, or by detention, on account of wanting declivity and outlet.

Very good turnips may indeed be grown upon strong and even wettish lands, in favourable seasons. But then they cannot

be eaten by sheep *on* such lands, without extreme injury both to the sheep, and the subsequent succession of crops. Nor can they be carried *off* for feeding cattle or sheep elsewhere, without poaching the land excessively, and consequently greatly injuring the crops that are to follow. I shall hereafter advert to a mode of raising turnips upon such soils, where no other is to be had for the purpose, whereby this latter injury may be considerably avoided, and the very material conveniency of turnips procured for a farm, which, once known and experienced, will not readily again be dispensed with, unless from unconquerable obstacles.

The best land for turnips, as already mentioned, is a dry-bottomed, free soil, of some depth and fertility. Any dry land will produce them decently with good management—even dry moor, or sand of some tenacity. Good, dry, gravelly loam, upon a gravel bottom, or what is called in Lanarkshire *stoney-rig*, is excellent; but names of soils vary in every district, and seldom convey accurate ideas, except to those accustomed to their use. In this country, we barely use the term turnip soil, various undoubtedly in its quality, in contradistinction to strong or wheat soil, though these often graduate into each other.

Turnips are admirable for cleaning land which has become foul with couch-grass or quickens, or other root weeds; for ameliorating that which has been impoverished by too long a course of corn crops, and for preserving land in a clean and fertile state, after being once so cleaned and ameliorated. On land which is fit for the crop, turnips ought invariably to form a fourth or fifth part of the arable division every year. It is undeniably proved by long experience, that land so cultivated, and relieved by alternation of pasturage and turnip husbandry, will never deteriorate or grow foul; but will always continue in high productive fertility and profitableness, in proportion to its quality. It may be said, indeed, that such culture, judiciously carried on, will continually increase the fertility of the soil; certainly, as that increasing fertility proceeds, the ratio of produce must proportionally increase.

Upon these principles, chuse, for the purpose of turnips, a stubble field that requires cleaning and amelioration; and give it a complete ploughing before winter. If the soil and subsoil be perfectly dry, the fearings or ridges may be of any convenient width. If subject to surface water, it ought to be laid up in fifteen feet ridges, having the interfurrows carefully opened up, and way made by the spade for the water to run off into the fence-ditches. If after lea oats, more especially if the turf is

strong

ſtrong and graſſy, it may be proper to give this firſt winter ploughing acroſs the original ridges of the lea, as, in this way, the turf is more broken, and better prepared for being reduced into fine tilth next ſpring. Eſpecial care muſt however be taken in this caſe to water-furrow the land wherever neceſſary, that no water may be detained on the ſurface, which is always injurious to every kind of crop, and to none more than turnips.

The land is to remain in this ſtate all winter; by means of which it becomes mellow, and eaſily worked next ſpring. If it is free from couch and other weeds, the dung may be ſpread on before this ploughing, which will ſave a great deal of labour afterwards at a more hurried ſeaſon; but, generally ſpeaking, eſpecially on commencing this kind of huſbandry, the regular proceſs, ſubſequently deſcribed, had better be followed.

In ſpring, as early as the ſeed-work for oats and barley will allow, the land ſhould be croſs-ploughed, as deep as the ſoil will readily admit, ſo as with certainty to get below the roots of the couch-graſs, and other creeping root-weeds, by which means they are detached from all connexion with the faſt ſubſoil, thrown looſe into the mould that is to be reduced into fine tilth, and thus prepared to be removed entirely out of the ſoil. The land is then to be ploughed again acroſs this firſt ſpring ploughing; and, in general, it may be taken as a rule, that each ſucceſſive ploughing is to croſs that immediately preceding, and all are to be kept to the full depth.

After the ſecond ſpring ploughing, harrow well in both directions, with what is called a full double time, both acroſs the ridges or lands, and end-long; and then employ people, uſually women and children, to gather every weed they can find into heaps on the field, cauſing them to ſhake the ſoil from the roots. Sometimes it is neceſſary to have a few people among the *wreckers* or weed-gatherers with pitch-forks, to ſhake out the matted weed-roots from the ſoil. If the land is cloddy, and does not yield to the common harrow, the heavy break-harrow may be uſed to advantage, and likewiſe the heavy roller, to break down the clods, and allow the roots to part from the ſoil. By the alternate uſe of theſe implements, the clods will be bruiſed, the ſoil pulverized, the roots detached from the earth, and brought to the ſurface, ſo as to be eaſily gathered.

Theſe operations of ploughing, breaking, rolling, and gathering, or ſuch of them as may be neceſſary, are to be repeated in ſucceſſion, until the land is effectually cleaned from all root-weeds, and the ſoil thoroughly pulverized, or reduced into fine tilth. This will always require at leaſt three ſucceſſive operations, beſides

beſides the winter ploughing, generally four, and ſometimes five, ſix, or even more.

Beſides being thoroughly cleaned from root-weeds, it is of the utmoſt importance that the ſoil for turnips be reduced into a fine mould. Some people may be afraid to overwork their land, ſo as to render it too dry before ſowing. But, generally ſpeaking, if the working of turnip land is carried on in quick ſucceſſion, there is very little danger of it becoming too dry. No circumſtance tends more to produce a ſtate of over dryneſs, than allowing the ſeed-weeds or annuals to grow luxuriantly in the intervals between the workings: hence the propriety of a regular and quick ſucceſſion of theſe operations.

Many perſons permit the gathered roots of weeds to remain in heaps on the land, until dry enough to burn. But, from experience in both methods, it is certainly much better to cart them to any convenient vacant ſpot as near as poſſible; where, after being mixed with a ſufficient quantity of lime, and repeatedly turned, ſo as to produce fermentation and putrefaction, they may be converted into an uſeful compoſt manure. While engaged on this ſubject, it may be proper to obſerve, that a large additional quantity of good dung may be annually procured by means of bedding the dung-yard in ſummer, with every kind of vegetable ſubſtance, or good mould, or lime rubbiſh, that can be conveniently procured. Or, if near peat moſſes, the refuſe moſs of the peat workings may be led home for that purpoſe.

When all the before directed operations have been carefully performed, the ſoil, in a favourable ſeaſon, will be reduced to a perfect ſtate of fineneſs or tilth, and will be effectually cleaned from all root-weeds. Even the annuals or ſeed-weeds, as wild muſtard, rape, crop, dry nettle, chickweed, &c. will be very much diminiſhed, as great quantities of their ſeeds muſt neceſſarily vegetate during the various intervals of labour, and be deſtroyed by each ſucceſſive operation. In this ſtate, the field will be altogther level, that is, having no ridges or furrows. In a favourable ſeaſon, I have known a field, very foul with root-weeds, perfectly cleaned without any gathering. The roots all died and waſted away between the intervals of working. But this is by no means to be expected generally, nor to be conſidered as giving the ſmalleſt licenſe for inactivity.

It is now that lime is to be laid upon the land, if it is intended to be applied. The quantity of this manure to the acre, and the method of laying it on, are preſumed to be generally known. From thirty to forty wheat bolls, or from an hundred and twenty to an hundred and ſixty Winchester buſhels of well burnt limeſtone, uſually called lime-ſhells, or about double

that

that quantity of slacked lime fallen into powder, make a good dressing for an English statute acre of turnip soil. The Scotch acre, being about an English acre and a quarter, will consequently require a quarter more than this quantity of lime. Previously to its being spread upon the land, the lime must be slacked, either by means of the air, or by watering, and reduced into a powdery state.

The next thing to be done, is to drill up the land for receiving the dung. This may be done in various ways, well known to good ploughmen accustomed to the turnip husbandry, but which hardly admit of intelligible description.

1. One method is by means of the double mould-board plough. Beginning at one side of the field or break, and taking the direction best adapted for allowing rain to run off the land, the whole field is to be made up into regular straight-lined drills or ridgelets, at the distance of about twenty-eight inches between their crowns or summits.

2. Another, and generally speaking a better way, is by means of the common single mould-board plough, going twice or even thrice along each drill. There are several ways of employing the common plough for forming drills; but which, as before observed, hardly admit of description, so as to be intelligible. Any good ploughman, however, will very readily fall into a method of proceeding, so as to form the drills regular in their distances, and perfectly straight in their direction.

It is next necessary to apply the muck or dung, if this has not been previously laid on the land before the winter ploughing, as already mentioned. For this purpose, the loaded dung-cart goes into the drills, the horse or horses walking in an intermediate drill, and the wheels running in the drill on each side. The driver walks behind his cart, and drags out the dung, with a muck-hack, into small heaps in the middle drill. Labourers, usually women and children, follow, and, with forks, spread the dung equally into the bottoms of the three drills.

The quantity of dung to the acre must vary according to the plenty or scarcity of that most valuable commodity. In general, twenty to twenty-five single-horse cart loads of good rotten dung to the English acre is a very good dressing. Where people have been long experienced in this culture, where they are anxious to have a large proportion of their land in turnips, and where the soil is in a fertile condition, so little as half that quantity of dung has been used successfully. Much dung is not necessary to insure a crop of turnips, but it ought to be in a ripe, or well rotted state. The crop being afterwards eaten by sheep upon the land

where

the land having been properly cleaned, and reduced to a ſtate of fine tilth, as directed, the operation of ſowing ought to commence as early in June as poſſible, and ſhould be carried on with all convenient diſpatch, and finiſhed, if practicable, within that month. When ſown earlier, the turnips are apt to ſhoot into ſeed ſtems before winter, which exhauſts the roots, and deſtroys their nutritious quality, as food for ſheep and cattle; and, beſides, is extremely injurious to the ſoil, becoming an impoveriſhing, inſtead of an ameliorating crop. When ſown later, the roots do not ſwell to a ſufficient ſize; conſequently, the quantity of food for ſheep and cattle is greatly diminiſhed, and the valuable purpoſes of a turnip crop, to the ſoil and farmer, proportionally leſſened.

There is a new kind of turnips introduced of late years into part of the country, named ruta-baga, or Swediſh turnip, which requires to be ſown three weeks or a month earlier than the common kind. This is a moſt valuable root, where it ſucceeds. But it ſeems to require ſoil of a ſtronger quality than common turnip; and is likewiſe not nearly ſo certain in its ſucceſs. It is in reality not a ſpecies of the ſame genus with the turnip, but is of the rape genus; and may be named turnip-rooted rape.

It is of great importance, that the ſoil preſerve ſufficient natural ſap or moiſture, to cauſe the turnip ſeed to vegetate quickly, and that the dung be not left for any time uncovered in the drills, to evaporate or ſpire. Therefore, in every day's work, the dung ought to be ſpread, and covered over with all poſſible deſpatch in the ſame yoking, and the ſeed ſown the ſame day.

After all the drills of the field have been completed, the two head-rigs or head-lands require to be finiſhed off in the ſame manner. One of theſe will probably have been much roaded by the dung carts, and will require to be ploughed and harrowed once or twice to reſtore its fineneſs. Uſually ſix drills are formed upon each head-land. Some farmers chooſe to ſow the head-lands broadcaſt, which certainly ſaves a little time; but the drill huſbandry, being generally infinitely preferable, ought aſſuredly to be carried through the whole field, without any exception, where it can be executed without very material difficulty or inconvenience.

When the turnip plants have ariſen to a tolerable ſize, ſo as to be ſufficiently diſtinguiſhable from the weeds growing among them, the cleaning proceſs begins. The firſt thing to be done is to carry the horſe-hoe down all the intervals between the drills, a few inches below the ſurface. This cuts off all the annual weeds of a conſiderable ſpace, leaving the row of young turnip plants

plants and weeds in regular ſtripes of five or ſix inches wide, and greatly leſſens the labour of the hand-hoers.

The hand-hoeing next commences, which muſt, in ſome meaſure, be familiar to every one who has ſeen a garden. The turnip plants, in this operation, are all ſet out ſingly, at from eight to twelve inches aſunder; the redundant plants, and all the weeds being drawn or puſhed by the hand-hoe, into the broad ſpaces between the drills. The weeders have occaſionally to employ their hands to pull up ſuch as grow very cloſe to the turnips that are to be preſerved. By experience, however, they acquire amazing expertneſs in executing this operation with the hoe. To ſee this proceſs for the firſt time, one would ſuppoſe the crop totally deſtroyed; but a turnip plant, which has ever ſo little hold of the ground, ſpeedily recovers its vigour.

It is of great importance, that the turnip plants be ſet out ſingly in this firſt hand-hoeing. When they grow two or more together, they draw up long and weakly, and do not ſwell properly at the root. Along with a gang of hoers, it is neceſſary to have a field grieve to keep them properly to their work, and to go about from drill to drill, amending any neglect that may occur. In this part of the procedure, it is quite unneceſſary to attempt ſupplying blanks by tranſplanting. For turnip ſeedlings, tranſplanted, never form any roots worth while. Ruta baga will bear tranſplanting, eſpecially in moiſt ſeaſons.

Some time afterwards, when a freſh growth of weeds has taken place, both the above operations are to be repeated in the ſame ſucceſſion. The horſe-hoe goes along the intervals as before, cutting off the weeds in them; and the hand-hoers go over the drills, cutting out every weed among the growing turnips, and near them on each ſide, where the horſe-hoe did not reach.

After ſome time, or when another crop of ſeed weeds appears, the horſe-hoe goes through the whole again, as before. Generally ſpeaking, this concludes the work; as the turnip plants have now got broad leaves, overſhadowing the ground in the rows, and for ſome diſtance on each ſide, whereby the weeds are prevented from growing. But, ſhould it be neceſſary, a third hand-hoeing ought to be given immediately.

In land that is very much overrun with ſeed weeds, it is ſometimes neceſſary to employ a few children to precede the hand-hoers, pulling up the rank weeds that grow in the rows; as, otherwiſe, the hand-hoers, working among ſuch rankneſs, might be apt to pull up plants that ought to be preſerved. But, if the firſt hand-hoeing is proceeded with, early enough before the weeds have acquired too much growth, this precaution will not be neceſſary.

Laſtly,

Laſtly, When all the above proceſſes have been performed, the double mould-board plough is to be employed to draw ſuch water furrows as may be judged neceſſary for carrying off any ſurface water; and a labourer with a ſpade muſt go attentively through the interſections, to clear out all obſtructions, and to open them into the fence ditches. Theſe water furrows may alſo be formed by means of the common plough.

Formerly, before the firſt hand-hoeing, the double mould-board plough with the left hand mould-board taken off, or a ſmall ſingle plough, was employed to go up and down between all the drills, gathering the ſoil into intermediate drills; thereby covering over and deſtroying all the weeds in the intervals. This is now thought to admit the drought too much to the roots of the young turnip plants; and the purpoſe of deſtroying the weeds, is as effectually ſerved by means of the horſe-hoe, and more quickly, as it performs at once what required twice going over by the ſmall plough. To obviate this inconvenience, I have ſeen two ſmall ploughs fixed abreaſt on one beam, ſo as to work two intervals at once.

Likewiſe, it was formerly the practice, after the ſecond hand-hoeing, to uſe the double mould-board plough, with both boards on, to ſplit the intermediate gathered drills, mentioned above; thereby again covering up all the weeds, and finiſhing off the field. This is not now approved of; becauſe, firſt, the turnips are found not to ſwell ſo well, if too much earthed up; and, ſecondly, the land is left in ſuch a ſtate, that fat ſheep, if they turn on their backs to ſcratch, are unable to riſe, and ſoon die. This is called *getting or falling award.*

This laſt method, however, is much to be commended on land that is apt to retain water, as giving more ready and more certain acceſs for ſurface water, from rain or ſnow, to run off.

It may be proper to mention, that all theſe operations with the horſe-hoe, double mould-board plough, or ſingle plough, between the turnip drills, after they are ſown, muſt be done with one horſe, going up the intervals between the drills.

Having promiſed to mention a method proper for raiſing turnips upon ſtrong or wet ſoils, where that convenience is very deſireable, and the farm does not afford proper ſoil for the purpoſe, I now proceed to that ſubject. Though, at the ſame time, I muſt premiſe that I here proceed on information from others.

There are two ways of growing turnips on ſtrong ſoils, drilled and broad-caſt. I have purpoſely omitted to deſcribe the broad-caſt turnip huſbandry upon dry ſoils, as on theſe, in my opinion,

opinion, such practice ought never to be followed, the drill husbandry being in every respect infinitely preferable. But whether broad-cast or drilling be best, that is, least injurious, upon strong soils, I confess myself unable to determine or advise. I shall therefore confine myself to what I understand to be the best methods of raising turnips on such soils.

The land having been cleaned, and reduced to fine tilth, in the way already directed, it is to be ploughed into twice gathered ridges, of fifteen or eighteen feet broad, so as to lay it thoroughly safe from wetness. The drills are then to be formed across these doubly gathered ridges; the dung put in; the drills split over the dung, and the turnips sown and managed exactly, in every respect, as already described.

If the land is to be limed, the lime ought to be spread immediately before forming the drills; and such soils, generally speaking, require a larger proportion of lime to the acre, than those of a free nature.

The great nicety of managing turnips on such soils, is to keep the land as dry as possible. For this purpose, the water furrows between all the ridges must be carefully opened out, by means of the double mould-board plough, after each of the horse-hoeings; every interfurrow of the drills must be cleared out by the spade, into these water furrows; and special care taken that the water furrows run perfectly free into the fence ditches. In this way, every possible facility is given for the escape of surface water, and the field left in the most secure state.

This plan for raising turnips in drills upon strong soils, is evidently attended with a great deal more expence than in the case of dry soils. The broad-cast manner, to be next described, is certainly less expensive; but I do not presume to decide to which the preference ought to be given in practice.

When turnips are to be sown broadcast, manage the cleaning and pulverizing of the soil exactly as already described; then plough the field into once-gathered ridges or lands of fifteen to eighteen feet broad; lay on and spread the dung, and gather the ridges once more.

Next sow the turnip-seed, and give a light harrowing once over all; then open up all the water-furrows with the double mould-board plough, and make a labourer, with a spade, clear out the intersections of these, with the water-furrows of the lower head-lands, and open proper communications between these latter water-furrows and the fence-ditches. The quantity of seed to the acre may be, as before mentioned, two or three pounds. The sower, taking only a small quantity at a time, between his thum

thumb and two next fingers, ought to give three caſts to each ridge, that no part may be miſſed.

The turnips ought to be hand-hoed as ſoon as the plants will admit of that operation, carefully reducing them to ſingle plants, at about a foot aſunder in all directions; and future hand-hoeings are to be given in ſucceſſion, as the weeds ariſe. In this caſe, more hand-hoeings are required than with drilled turnips, as no horſe-hoeings can poſſibly be given. Perhaps three, or even four, hand-hoeings may be neceſſary. I am yours, &c.

R r.

(To be continued.)

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Thoughts concerning the Utility of Ploughing-Matches, with ſome Remarks on the Conduct of the Highland Society, in confining Premiums to thoſe Diſtricts where good Ploughing is already practiſed.

SIR,

I believe it will readily be admitted, that nothing would tend more highly to excite men to virtuous enterpriſes, than the conſcious ſatisfaction they convey; were only the conviction univerſally prevalent, of the inſeparable connexion of the deed with the reward. As, however, thoſe who have not yet attained to perſonal experience of the fact, can have its reality aſcertained to them by no other mode, than through the communicated experience of others; for this reaſon, Sir, I have ever conſidered it as highly inexpedient, that the ſelf-ſatisfying conſciouſneſs of praiſeworthy deeds ſhould be confined to the boſoms of the performers, as the ſecret ſource of a mere ſelfiſh ſolitary joy. For the information and encouragement of the inexperienced, this invariable accompaniment of virtue ought ever to be openly diſplayed, even to the hazard of oſtentation; and the reluctant timidity of modeſt diffidence ought, in this inſtance, to be made to give way to the proſpect of general edification and utility.

It gives me great pleaſure to obſerve, that this view of the ſubject ſeems more and more to have gained ground in the public mind. Merit has diſmiſſed the obſcuring veil of baſhful modeſty; nor is virtue any longer retiring: the performers of meritorious achievements ſtep boldly forward to vindicate their claim to the meed of public approbation, and *their light is made to ſhine before men.*

This happy revolution of public ſentiment has of late been more peculiarly manifeſted in thoſe details of *ploughing-matches*, with which

which our newſpapers daily teem; in which the ſelf-gratulating conſciouſneſs of deſert, in the patronizers and conductors, *bewrayeth itſelf* like the ointment of the right hand; and a title to unqualified public praiſe is aſſerted with the moſt undiſguiſed confidence.

To further this general ſelf-jactitation, by illuſtrating the *merit* or *utility* (which I conceive to be ſynonymous) of the inſtitution of ploughing-matches in general, and the wiſdom of the maxims upon which they are commonly conducted, in particular, ſhall conſtitute the purpoſe of the following eſſay; that I too may ſnatch ſome ſmall portion of honour in contributing my mite to the rendering of an inſtitution, ſo pregnant of utility, ſtill more and more univerſal.

The general meritorioufneſs of ploughing-matches might well be reſted upon the evidence of univerſal conſent, (were it not, that, in this captious age of ſcepticiſm, the moſt obvious truths are called in queſtion, obliging *their* defenders ofttimes to run the riſk of the cenſure thrown out by the poet againſt various commentators, of 'holding their farthing candle to the ſun'): For, in all the ploughing-match advertiſements, the general merit of ſuch achievements is univerſally aſſumed as a thing to be taken for granted; nor is a ſingle argument advanced in juſtification of their highly meritorious nature; being held entirely ſuperfluous in a matter, as it would ſeem, abſolutely indiſputable. The only variety to be obſerved in theſe advertiſements, is the ſpecification of the various adjunctive and collateral circumſtances which, in each particular caſe, had tended to enhance that general merit, which is ceded, in common, to all the patronizers of this precious invention; whilſt ſome, for inſtance, claim the peculiar merit of being the *firſt* that introduced it into their county, or that had conſtituted it into an excluſive parochial concern; and others (like the *Eddleſtone Club*, whom you have introduced to the notice of your readers) plume themſelves in having converted their ploughing-match aſſociation into a ſociety for diſcuſſing topics of agricultural ſpeculation, and for the mutual communication of their ſeveral experiments and experiences.

And here, Sir, (by the way, and before proceeding to my general purpoſe), allow me to teſtify my unqualified approbation of the inſtitution of ſocieties, in the deſign, juſt ſpecified, of the Eddleſtone Club. The indiſpenſable neceſſity of mutual communication, for the augmentation and diffuſion of profitable knowledge, is indeed ſo extremely obvious, that I may deſpair of rendering it more ſo by any comment of mine. Without intercommunion and tranſmiſſion by record, no individual could ever attain

tain to a greater extent of knowledge than what might be gathered from the perſonal experience of his own ſingle life; that knowledge muſt, alſo, inevitably periſh with himſelf; poſterity could never profit by the acquiſitions of preceding generations; knowledge never could accumulate; nor could the world ever grow one whit wiſer. Without ſuch ſocial and mutually-edifying uſe of the faculty of communication, we indeed ſhow ourſelves utterly unworthy of this very beſt gift of our Great Creator. I do therefore moſt highly commend this inſtitution of my fellow-farmers of the Eddleſtone Club, and do conſider it as a very juſtifiable ground of ſelf-applauſe and conſcious ſuperiority in its authors; and I muſt, further, moſt ſincerely congratulate the county of Tweeddale, in having that aſperſion thus wiped off, which (as ſeems inſinuated in the Eddleſtone advertiſement) formerly attached to its agricultural practitioners, that they were (to uſe the prophet's expreſſion in regard to the ſupinely negligent watchmen of Iſrael) '*all dumb dogs, that could not bark; ſleeping, lying down, loving to ſlumber: yea, greedy dogs, which can never have enough; ſhepherds that cannot underſtand, all looking to their own way, every one for his gain from his quarter.*' From the ability and extent of reſearch evidenced to ſubſiſt among the members, (by thoſe reſpectable ſpecimens of their lucubrations which you, Sir, have laid before the public, as ſent from the Club collectively, or from ſeparate members individually), I have indeed been diſpoſed to conſider this club under the ſame light, in reference to agriculture, under which I have ever been accuſtomed to contemplate the ancient nation of the Jews in regard to religion,—even as a central focus of illumination, conſtituted under the overruling hand of Providence, from whoſe irradiations the darkneſs of ſurrounding ignorance was deſtined, in the fulneſs of time, to be enlightened. Conſidering, however, the probable frequency of the meetings of this club, together with the probable importance of the many various ſubjects of agricultural diſcuſſion which may be preſumed to have fallen under their acute inveſtigation, I cannot help regretting that the public has, as yet, ſo little profited by their labours; more particularly, when I call to mind the creditable ſpecimens by which they were firſt introduced to public notice in your Magazine, with the liberal invitation you then gave them, to continue their communications. I do, Sir, moſt certainly preſume that they are Chriſtians; but, in this apparent reluctance to communicate their privileges beyond their own pale, let me beg leave to remind them, that they ſeem to have too much adopted that unſocial, ſelfiſh, and excluſive ſpirit, by which the Jewiſh nation was diſtinguiſhed.

I ſhould now return to my original purpoſe, which was, to illuſtrate the peculiar *merit* or *utility* (which I conceive as ſynonymous expreſſions) of theſe ſaid *ploughing-matches*, which ſeem to conſtitute *the rage of the day.*

Previouſly, however, to my entering more particularly upon this illuſtration, allow me, Sir, (upon ſuppoſition of my having already ſufficiently accompliſhed my purpoſe, which I certainly pledge myſelf to do in the courſe of this eſſay), to congratulate my countrymen of Scotland upon this happy rage that ſeems ſo univerſally to prevail. And ſurely it muſt afford the higheſt delight to all the lovers of the uſeful arts, to obſerve the extreme ardour for this ſpecies of exhibition which has of late pervaded all ranks in this country; inſomuch, that your newſpaper printers, relinquiſhing their uſual maxims of economy, ſeem univerſally willing, without exacting fees of advertiſement, to inſert the moſt preciſe details, not only of the operations performed, but of the ſubſequent feaſts of the heroes of the day, deſcribed in all that circumſtantiality of minuteneſs, in which Homer, the father of poets, (as I read him in Pope's tranſlation), deſcribes the manful dinners of the worthies of the heroic ages of Greece. Many pariſhes (I am credibly informed) grudge not to lay out, *annually*, upon ſuch exhibitions, ſums far exceeding what they have judged ſufficient for their contingent contribution to the Royal Infirmary of Edinburgh, (with the ſupport of which, the exiſtence of the ſuperiority of Scotiſh medical ſkill is ſo intimately connected), although, apparently, this latter contribution is not expected to be called for *above once in twenty years.* I do, indeed, moſt cordially concur in opinion of the propriety of ſuch preference; for to what end do funds ſerve, contributed to an Infirmary, or to the ſupport of medical ſkill, but to the eventual protraction of the torments of a miſerable exiſtence (not worth preſerving) to a few melancholy invalids, and to the ſtraitening, meantime, of the ſtock of proviſions and other comforts, to the healthy and vigorous, who are able to enjoy life? It were far better to ſweep them all off at once by poiſon, like the cumberſome hoſpital lumber of a flying camp; to fuſilade them, like priſoners of war, to rid ourſelves of the uſeleſs embarraſſment of their maintenance; or to bury them all alive with quicklime, like mutilated ſoldiers rendered unſerviceable after an engagement: in all things haſtening unto the coming and univerſal prevalence of the newly invented, tranſcendental, philanthropic philoſophy, under whoſe auſpicious influence the perpetration of partial evil, to whatever extent of

magnitude, has been happily found convertible into an engine for the production of univerſal good.

The time, Sir, as you well know, has not long elapſed, ſince commerce and manufacture were conſidered as conſtituting the very ſinews and ſtrength of ſtates; to the promotion of which, the intereſt of agriculture, and of every other thing, ought to be ſacrificed as ſubordinate. The tide of public opinion ſeems however, *now*, happily to have ſet in upon an oppoſite direction, and agriculture ſeems ſpeedily advancing to that ſuperiority of rank and eſtimation to which ſhe was ever entitled, as the elder ſiſter. Whilſt commerce and manufacture were *all the rage*, their intereſts were carefully protected and encouraged by excluſive privileges, by bounties or premiums; and I am happy to obſerve, that agriculture is now in the fair road of being admitted to her equal ſhare of all ſuch advantages. The corn laws have given, to our agricultural productions at leaſt, a limited degree of monopoly of the home market; and it is to be hoped that this privilege will, in due time, be ſtill farther extended, to the utter excluſion of all grain of foreign growth, even as we formerly excluded French laces and cambrics, and German linens. For ſurely, the hale, jolly dogs of farmers, are much more worth protecting, than a parcel of greaſy, jaundiced weavers, or liſtleſs ſhopkeepers, hanging over their doors with the mildrop at their noſes.

My preſent ſubject, the illuſtration of the merit of the inſtitution of ploughing-matches, leads me, however, more particularly to direct my obſervations to that mode of encouragement formerly excluſively held out to commerce and manufacture, but now happily directed to agriculture—*the encouragement of premiums.*

I obſerve then, upon this ſubject, that the wiſdom evinced, in our diſcerning at length the due preference of agriculture to commerce and manufacture, has ſtill much more been conſpicuouſly diſplayed, *in our total reverſal of every maxim, formerly acted upon in the appropriation of premium*, whilſt commerce and manufacture continued to be the prevailing rage; and *in our having adapted new maxims, as to this ſubject, of a nature diametrically oppoſite.* This ſuperior wiſdom of maxim has been peculiarly manifeſted (as ſhall appear in my further illuſtration) in regard to the appropriation of premiums at ploughing matches.

During the commercial and manufacturing rage, premiums were held out, *to induce ſpirited adventurers to the trial of new inventions, whoſe utility was as yet unaſcertained; nor were they continued longer than until the aſcertained utility of the invention (if happily it proved uſeful) enabled it to ſtand upon its own legs, in conſequence*

ſequence of the profit of its practice ſufficiently rewarding the practiſe In regard, however, to the encouragement of the plough, w have moſt ſapiently reverſed all thoſe antiquated maxims.

I muſt indeed acknowledge (I truſt, in all due ſentiments c humiliation, under a ſenſe of this remnant of folly ſtill exiſtin in the Britiſh empire), that, in ſome very few inſtances of a counts of Engliſh ploughing-matches, the antiquated maxims ſee ſtill fooliſhly to have been adhered to: Ploughs of different, an of newly invented conſtructions, have been ſtarted, in competitic againſt one another, and againſt thoſe of more uſual conſtruc tion, that their reſpective ſuperiorities might thus be clearly a certained.

It however rejoices my heart to obſerve, that in by far th greater number of inſtances, the newly invented maxim of wiſdo has moſt happily prevailed in ploughing-matches. Premiun have been held forth; *not to induce competitors to the trial of a thing new and unaſcertained; not to ſupport (and that but for while) what cannot as yet be truſted to ſtand its own ground witho extrinſic aid; but to reward perſeverance in what has been alrea fully eſtabliſhed into general practice upon its aſcertained and acknow ledged utility; to uphold, by foreign ſupport, what is in no manne of riſk of falling.*

The wiſdom and propriety of the inſtitution of ploughing matches in general, and of this newly adopted maxim as to th application of premium in particular, will both, I hope, be mo readily evinced by the following arguments.

1mo, As to the annual celebration of ploughing-matches, th wiſdom of the meaſure muſt be abundantly apparent to thoſe wh conſider its exact conformity to the ſimilar inſtitution of *weapon ſhawing*, ſo wiſely deviſed, and ſo long upheld by our pruden anceſtors. Objectors have indeed alleged againſt this argumen from the wiſdom of antiquity, that, 'as arms do not conſtitut the uſual profeſſion and employment of the people at large; with out the *poſitive inſtitution of weapon-ſhawing*, the uſe of arms woul neceſſarily fall into deſuetude: but that the analogy by no mean holds as to ploughing; for that, as long as men ſhall continue (ac cording to Homer's characteriſtic definition) to be *wheat eater* there can be no manner of riſk of the plough ever falling int diſuſe; that, in ſhort, in the very nature of the thing, there i conſtituted a moſt complete inſurance, not only of the continu ance, but alſo of the unremitting perfection of the art, ſo long a the meliorations of manufacturing induſtry upon raw produce, o the importation of different commodities by commerce ſhall con tinue to furniſh an exchangeable value for the increaſed produc

tions of agriculture;—that the obvious *intereſt* of the maſter farmer, and the no leſs obvious *intereſt* of the farm-ſervant (whoſe ſuperior ſkill in his profeſſion muſt ever inſure him either of better wages, or at leaſt of preference of employment), are cauſes whoſe unceaſing operation may be with certainty depended upon for the undeviating progreſs towards perfection, both of theoretic and practical agricultural ſkill, unleſs indeed where, through legal obſtruction, or through ſome abſurd incapacitation in conſequence of fooliſhly conceived terms of private bargain, that *intereſt* is either diminiſhed or annihilated.' Such, Sir, I apprehend to be the full force of the objection. For it is always my mode to do all manner of juſtice to the arguments of my adverſary. Nor does one, in this way, do any diſſervice to his own ſide of the diſpute; for, even ſuppoſing one's arguments, *per contra*, were not in reality of themſelves very concluſive, yet the very boldneſs with which you meet your adverſary upon his ſtrongeſt ground, indicates your own conſciouſneſs of perfect ability to overcome him; for the which the reader is therefore diſpoſed to give you credit, although he ſhould not be able actually to perceive that any conſiderable degree of force has, on your part, been exerted. But this, by the way, as a prudential hint in regard to extrication from controverſial difficulty. In anſwer then to this objection, I ſhall not, like the gravelled Quaker, appeal to heaven as my laſt and only reſort, nor ſay with him, The Lord rebuke thee, oh argument! No, Sir, I am by no means reduced to ſuch a laſt ſhift. On the contrary, I do boldly aſſert, and do moſt confidentially maintain, that the analogy upon which I found, and which the objector thus pervicaciouſly controverts, is not one whit leſs ſtrong, nor leſs concluſive, than many of thoſe analogies upon which many a ſeemly ſyſtem has been erected, and has obtained currency in the ſciences of politics and of medicine, as well as in the ſcience of agriculture. But I beg pardon for having dwelt thus diſproportionately and ſuperfluouſly long upon this argument, and now haſten to other ſtill more intereſting conſiderations.

2*dly*, Then, as to the ſuperior wiſdom diſplayed by the patronizers of ploughing-matches (particularly in the modernly deviſed maxim, *of holding out premiums, not for any thing new and unaſcertained, but for perſeverance in what is already perfectly eſtabliſhed into practice, and inſured alſo of continuance from its known and acknowledged ſuperior utility*;—I ſhould conſider it as a matter already abundantly obvious to every one who has attended to that humiliating mortification which the patron muſt inevitably undergo, who has lent his countenance and his money to the ſupport of ſchemes

nes and projects which have manifested their own absurdity, roving finally abortive. You must know well, Sir, what ber of our countrymen had recourse to hanging in their garters as the last direful expedient of withdrawing them-s from public ridicule, upon the bursting of that bubble, the h Sea scheme. How many Russian boyars, and German ry and princes, have there not been reduced from a state of ence to rags and penury, in countenancing and supporting the nary unascertained schemes of the projectors of the medicinal *cea*, and the universal transmutation of metals? Is it not highly prudent, in our modern patriotic patrons of the use-arts, to secure themselves against all possible risk of such dis-r, by confining the encouragement of bounties and pre-ms to such practices as are established and secured of conti-nce, without the smallest need of foreign aid, from their own ous and approved utility? For my own part, Sir, though an old man, I nevertheless expect to live to see the happy s, when every attempt at new invention (necessarily of itself arious) shall be absolutely knocked on the head; and when, er such safe-fighting patrons, men shall be excited, by boun-and premiums, to *perseverance* in the long established and most roved useful practices, *of eating their dinners through the day, of going to sleep in their beds through the night.*

But, to place this subject in another point of view. Having al-ly pointed out the wisdom of the maxim negatively, as a *rity against the disaster of mortification*, I next proceed to point its *positive advantages* as *tending to insure to patrons the exalt-feeling of self-applause, and the flattering remuneration of public se.* Every patron most unquestionably aims at these, and is of rse interested in that credit which can only be obtained through success of the schemes which he espouses. To withhold coun-nce, and to shake the head of doubt and mistrust at the pro-al of every new invention, infallibly secures to the professed on of the useful, one of two advantages; either the charac-of penetrating foresight in case of miscarriage, or that of cau-s prudence in case of the success of the scheme. When patrons, ever, give their patronage of premium to the encouragement of progress of what is, by necessity of its own nature, progressive, not only infallibly secure themselves against mortification, but thus also slily appropriate some share of public praise for the ef-uating of that progress which in fact resulted from the inhe-t necessity of the thing; a great facility being afforded, in such instances, of *confounding* (to use the words of a modern author) *coincidence with causation.* Happiness, it is commonly ob-

served,

ſerved, conſiſts in opinion; and if patrons, acting upon this maxim, can raiſe themſelves to the delightful ſelf-ſatisfying conſciouſneſs of their proving public benefactors, it matters the leſs whether this opinion is erected upon a juſt foundation, or is merely aſſumed through this ready opportunity of *confounding*, if only the opinion itſelf does really exiſt. A flattering occaſion is thus given of attaining to the ſelf-gratulation of the fly of the fable, perched upon the wheel of the rolling chariot, and of venting one's ſelf at every turn, in the words of her exulting exclamation, 'Lord, what a clutter I make, and what a duſt I raiſe in my progreſs!'

I do profeſs myſelf an admirer of ancient wiſdom. The commercial mode of appropriating premiums *merely to what is new and unaſcertained*, I do conſider as having been a mere fanciful innovation. But, happily, we are now retracing our footſteps, and reverting to the wiſdom long ago compreſſed into the proverbial adage, 'a bird in hand is worth two in the buſh.' To part with the money premium in hand, in encouragement of an untried invention, is aſſuredly to relinquiſh a certain advantage in poſſeſſion, for a very uncertain advantage, indeed, in expectation; whereas, when you hold out a premium to encourage a practice already perfectly underſtood, and thoroughly eſtabliſhed, and inſured of continuance from the ſuperior profit it is ſeen to produce, you may be perfectly aſſured that your money is not idly thrown away.

But, farther, to hold out premiums for *new inventions*, is, in my humble opinion, taking the direct road towards univerſal innovation, whoſe demon ſpirit every wiſe man will certainly endeavour, tooth and nail, to overwhelm. That mode of appropriation of premium was itſelf an innovation, ſuited to the daring adventurous ſpirit of commerce; a ſpirit which I have ever beheld with jealous ſuſpicion. As a very old man, Sir, confirmed in, and wedded to his old habits, I am a warm friend to every thing long eſtabliſhed; I hate the very name of reform; and if we ſhould once encourage a ſpirit of innovation in our ploughing, God knows how ſoon we might proceed to revolutions in the ſtate!

Every local practice, which has obtained the ſanction of long eſtabliſhment, I do conſider as, *ipſo facto*, evinced to be moſt fit for that place where it has prevailed, and its continuance, I therefore judge, ought to be ſtrongly ſecured by the modern deviſed or rather revived premiums *upon perſeverance*. What man in his ſenſes, for inſtance, would ever madly propoſe, by inſtituted premiums, to introduce into the Engliſh county of Middleſex, either the uſe of fanners, or of thraſhing machines; or of

two

wo horſes as ſufficient for the draught of a plough, and as capable of being guided by the plough-holder without the aid of a driver; or of ſwing inſtead of wheel ploughs;—matters which the natives never heard of, but by mere vague report? To me it appears much more than probable, that ſuch injudicious innovations would neither ſuit the nature of the ſoil nor of the climate, nor the genius of the brutes nor of the men. The very wiſe electors of that diſtrict of the capital are ever making a clutter about liberty and reform; and, conſidering their influence at the head, the impulſe there given might ſoon be communicated to the more diſtant members. I ſhall, however, entertain no ſerious alarm, nor conſider all this bluſter as any thing more than a mere harmleſs and ſalutary evaporation of turbulence, till I ſhall obſerve the ſpirit of innovation actually manifeſting itſelf in alterations of their good old faſhioned agricultural practices. This, indeed, would be ſomething more ſerious than words, and more ominous than their rioting for Sir F. ——. Whilſt they ſhall, however, perſevere in their old practice, and ſhall continue to reſiſt the propoſed innovation in the diſtribution of their porter in their own mugs, inſtead of thoſe of the publicans, I ſhall be perſuaded that, in heart, they ſtill adhere to the good old maxim, *Nolumus Angliæ leges mutare.*

If my arguments, hitherto uſed, ſhould not, of themſelves, be deemed perfectly demonſtrative of the wiſdom of the modern maxim, as to the appropriation of premiums at ploughing matches, I could eaſily enforce unanimous conviction by having recourſe to the overwhelming weight of authority. And here, Sir, I would entirely diſclaim the authority of *general conſent*, however evidently in my favour, in the account of almoſt every Scotch ploughing-match which appears in our newſpapers. Not, Sir, but that this authority is ſufficiently cogent; I reject it, not for want of force, but as entirely ſuperfluous. I would appeal, Sir, to an authority of infinitely greater weight than that of the general conſent of any given number of obſcure ploughing-match patrons; for, in my eſtimation, it is the quantity of brains, and not the mere number of ſnouts, that ought to confer authority upon opinion. The authority, to which I appeal, is no leſs than that of the Highland Society of Scotland, from whoſe labours ſo much, and ſo juſtly is expected.

They, too, have of late extended their patronage to this favourite *protegé* of the public; and under their immediate auſpices, an exemplary reſpectful deference continues to be paid to the *modern*, or rather lately renovated *ancient* maxim, as to the appropriation of premium. We never yet, Sir, have heard, and, I truſt, never ſhall hear, of their interference, in raſhly ſtretching

ſtretching forth a ſacrilegious hand againſt the ancient and venerable fabric of immemorially conſtituted Highland agricultural practice. We have never heard of their attempting to introduce into the Highlands of Scotland, by inſtituted premiums to that effect, the uſe of fanners, or of thraſhing, by either flails or mills, inſtead of the eſtabliſhed compendious mode, (embracing, in one operation, the whole proceſſes of thraſhing, winnowing, and drying), that of *burning the crop*. Neither have we, yet, heard of their encouraging (by premiums upon ploughing matches ſo performed) the uſe of the plough drawn by two horſes working upon collars, and without a driver, to the diſcouragement of the eſtabliſhed, antique, and venerable practice of ploughing with four horſes going abreaſt; yoked to their draught by the attaching tackle of nature's own providing, even the hair of their own tails; and driven, or rather led, or rather pulled forward, by a man leader, holding in his one hand their halters of twiſted willow, walking backwards before the horſes, with his face looking to their faces, and with the other hand beating them upon the forehead with a cudgel, to make them advance forward. No, Sir; I truſt the Society are too wiſe to attempt ſuch raſh innovations. Their only interference in this kind, of which I have ſeen an account, was in a ploughing-match lately performed, for premiums of their aſſignment, at Carnwath in Clydeſdale, where the ploughing was executed by two-horſe ploughs (according to your well known and approved Eaſt Lothian practice), and that too in a diſtrict where the mode of ploughing is perfectly familiar and eſtabliſhed, and inſured of continuance from its acknowledged ſuperior utility, without the ſmalleſt need of any foreign ſupport whatſoever, and where, of courſe, a premium upon *perſeverance* is peculiarly appropriate, in conformity to the maxim I have been endeavouring to illuſtrate, the wiſdom and propriety of which, I hope, I have now rendered as plain to every reader as—

8th January 1805. A B C.

NOTE BY THE CONDUCTOR.

If ploughing matches are generally conducted after the manner alleged by our correſpondent, and if premiums are, at theſe, adjudged, not to new inventions, but to perſeverance in practices already perfectly familiar, and firmly eſtabliſhed upon their approved utility, we muſt certainly concur in that ſenſe of their ridiculous futility, which our correſpondent expreſſes under cover of his ironical vindication. And if importance is aſſumed upon the merit of ſuch a futile inſtitution—if well meaning people

people are induced to lay out diſproportionate ſums upon its ſupport, in the liberal-minded, but ill-digeſted conception—that they are thereby contributing to the promotion of the uſeful art of agriculture, we muſt give credit to the correſpondent who unmaſks ſuch prepoſterous pretenſions, and reduces ſuch inſtitutions to their proper level in the eſtimation of the public.

We fear, indeed, that our correſpondent's ridicule is but too generally applicable, and have often conſidered theſe plough-races, which ſeem to conſtitute the prevailing rage, in the light of a mere harmleſs amuſement. As ſuch, we have looked upon them as equally unentitled either to much praiſe or blame. Under ſuch views, however, we muſt ſtill conſider them as affording an entertainment, at leaſt equally rational, and probably fully more uſeful, than boxing matches, cock-fights, or the races of lice upon heated trenchers. We have uniformly, in the courſe of our work, eſpouſed the opinion expreſſed by our correſpondent, that the improvement of agriculture moſt eſſentially depends on *the intereſt in improvement*, which is communicated to the cultivator of the ſoil; and that, if there is no want of *moral excitement*, *practical improvement* will follow of courſe, in the preſent enlightened ſtate of ſociety.

As to the ploughing-match under the auſpices of the Highland Society at Carnwath, referred to by our correſpondent, we are not ſo thoroughly apprized of all particulars as to be able perfectly to judge, whether it is juſtly entitled to that ridicule which he throws upon it, *as turning out, in effect, to have been a mere aſſignment of premium to perſeverance.* We certainly conſider all public bodies as ſuſceptible of impreſſion from the current of popular impulſe; and that this is what they have chiefly to guard againſt in their operations. The inſtitution of this ſociety appears to us ominous of much good to the country at large, in affording a proper mode of collecting the general ſenſe of the moſt enlightened part of the community upon every important public queſtion. Nor do we conceive that its reſpectability, in public eſtimation, can be in the ſmalleſt degree impaired by the harmleſs jokes our correſpondent has thrown out *in regard to what they have not done.*

Our Drawcanſir-like correſpondent lays about him in all directions, and has had his ſtroke of wit at our old and reſpected friends of the Eddleſtone Club. And here we muſt join him in his *ſincere* and unqualified approbation of their having erected themſelves into a ſociety for agricultural diſcuſſion, as alſo in his regret of the infrequency of their communications. As to his *banter* of hyperbolical compliment, we can hardly ſuppoſe they can have afforded any fair ground for it, in any thing of arrogance

arrogance on their part. Some of them are perſonally known to us; and, from their good humour, we ſhould ſuppoſe that, inſtead of being irritated, they might even be tempted to offer our witty correſpondent the honours of honorary memberſhip, and to ſolicit his correſpondence; the farther continuance of which we, on our part, warmly requeſt. N.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Culture of Sainfoin.

SIR,

The great utility of ſainfoin for horſes and cattle of all deſcriptions, both when uſed as green ſoiling, or when made into hay, is univerſally admitted, not only on account of the luxuriant and abundant crop produced on poor ſoils, but on account of the excellent nouriſhment it affords. A more extenſive cultivation of this very uſeful plant, on ſoils favourable to its growth, is in no ſmall degree retarded by the injury ſuſtained from it to the after rotation of crops. Moſt kinds of grain, particularly wheat and barley, die and waſte away in the blade; ſo that ſometimes after a turnip crop, and a good dreſſing of lime, even after a fallow, to the fifth or ſixth crops, inſtances are not wanting of a wheat crop being nearly all deſtroyed. From the beſt obſervations, this effect appears to be occaſioned by ſome ſmall ſlug or caterpillar, probably fed by the roots of the ſainfoin. Lime, in its new ſlacked, or quick ſtate, has been often reſorted to in vain; and a field under my obſervation, fallowed after ſainfoin, and limed with ſeven or eight chalders per acre for wheat, produced not one-third of an average crop. Whether paring and burning the ſurface might have the deſired effect, I cannot ſay; becauſe perhaps the concealed enemy lies deeper under the ſurface than that operation would reach; but, if any of your intelligent correſpondents could ſuggeſt a remedy, founded on experience, through the medium of your very uſeful publication, it would much oblige, your's, &c. &c.

WM. ALLEN.

Stream Farm, Sherburn, Yorkſhire, Jan. 30th 1805.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Mildew in Wheat, and of the Propriety of Cutting an Infected Crop early.

SIR,

Your obſerving correſpondent from Yorkſhire (Vol. V. p. 498.) ſends you a very important diſcovery. Whether he may be perfectly

fectly correct in the ſtatement, it is not for me to determine. He may, poſſibly, be guided by the information of others, and, in that caſe, may be miſled. The account, at firſt ſight, ſeems to ſhock our notions of the proceſs of frumentation. But that is not a ſufficient cauſe for condemning it. Trials, without prejudice, ſuch as become inquirers after truth, are the ſureſt means to determine the queſtion. You anticipate me, Sir, I doubt not, in the circumſtance I allude to. Mildewed wheat, your correſpondent reports, if reaped while it is green, will contain grains of much more value than if it ſtands till it is ripe. The gentleman attempts nothing, by way of theory, to account for this extraordinary appearance. He merely ſtates the fact, without obſervation or comment. Reflecting upon this new diſcovery, if it is one, in natural hiſtory, ſomething may perhaps, I think, be adduced to countenance the poſſibility of its exiſtence.

The mildew in wheat, if it is extreme, may reſemble an atrophy in the animal body. In this caſe the grain, like the animal, muſt decreaſe in bulk, the longer the plant lives after it is affected. A favourable ſeaſon for maturing the one, as the moſt ſucculent food for nouriſhing the other, will be perfectly fruitleſs. The two ſubſtances will not remain ſtationary; they will decline in continual progreſſion, till the grain is reduced to a ſkin, and the animal to a ſkeleton.

Upon this principle, public economy is intereſted in ſaving as great a proportion of food as the nature of the caſe will admit. The only means of effecting this, ſeems to be early cutting in the one inſtance, and timely ſlaughtering in the other. I am, Sir, your obedient ſervant,

*** J.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Account of a Prolific Ewe.

SIR,

SUCH rare inſtances of animal fecundity as the following, ought to have a place, I think, in the Farmer's Magazine.

In 1801, a gimmer ſheep, bred by, and ſtill the property of Mr Bell of Woodſide, near Barmoor-caſtle, Northumberland, yeaned five lambs.

In 1802, the ſame ſheep produced alſo five lambs.

In 1803, the ſame ewe brought forth the ſame number of lambs.

Lately ſhe yeaned four lambs. In four years this prolific creature has produced nineteen lambs; a rate of increaſe never before equalled, probably in this, or in any other ſpecies of ſheep.

This

This ewe ſhews externally no peculiar configuration. She is of the improved breed of long-woolled ſheep, ſo long propagated in that neighbourhood; was tupped by rams of the ſame breed; is herſelf white, as were alſo the rams which were put to her. She is well formed, and will, when fat, weigh ſeventeen pounds per quarter.

It may not be improper alſo to mention, that of theſe nineteen lambs ſome were black. I am, Sir, your friend and ſervant,

19*th March* 1804. J.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Reply, Sir G. S. Mackenzie to Mr Headrick.

SIR,

I HAD prepared a reply to Mr Low of Annfield's letter, vol. V. p. 451, which, in my humble opinion, ſatisfactorily ſupported the objections formerly offered againſt the method ſuggeſted by A. S., for aſcertaining the quality of limeſtone; which is now rendered unneceſſary by the appearance of Mr Headrick's letter in your laſt Number. Not wiſhing to take up room, by any diſcuſſion which cannot intereſt your readers, I conſider it as ſuperfluous to point out how Mr Headrick has virtually acknowledged the validity of my objections to A. S.'s proceſſes; or to ſhow how awkwardly an apology comes for A. S., after an attempt to vindicate him; or even to correct the miſrepreſentations of my former communications which appear in Mr Headrick's paper. It will be ſufficient to exhibit to your readers a ſource of error in his proceſs, which he conſidered as ſuch in what I propoſed. I may juſt point out to Mr Headrick, ſince he has given me liberty, what appears to be a miſtatement in his own proceſs, which perhaps has proceeded from inaccuracy of expreſſion. After reading the laſt paragraph, p. 13, it appears that Mr Headrick meant exactly as he writes. But, from what he ſtates at p. 17, other carbonates, beſides that of lime, may be preſent; and, of courſe, the remainder, after deducting the refuſe, may not be the proportion of carbonate of lime, but may have, beſides the real proportion, the addition of the carbonic acid which belonged to the other carbonates.

But it is not, by any means, 'the proportion of *carbonate* of lime contained in the maſs' which a farmer wiſhes to aſcertain; it is the proportion of *lime* to the *refuſe*. From what Mr Headrick has ſtated, of the variable proportions of carbonic acid and lime, his proceſs cannot diſcover what is wanted, any more than what I propoſed, to enable a farmer to *gueſs* what he wiſhed to know.

know. It is not carbonate, but *lime*, which the farmer wiſhes to carry home; and I ſhall juſt ſtate a caſe, by which it will be ſeen how very deceitful Mr Headrick's proceſs may be.

He cannot deny, that two pieces of limeſtone may appear to contain exactly the ſame quantity of refuſe. Meeting with ſuch a caſe, he will tell a farmer, that he may take whichever of the two is moſt convenient, as they are both equally good. But obſerve the conſequence. Let us ſuppoſe that each contains 10 *per cent.* of refuſe. The whole contents may be as follows:

	No. 1.	No. 2.
Refuſe — —	10	10
Carbonic acid and water	40	45
Lime — —	50	45
	100	100

Truſting to Mr Headrick, a farmer may chooſe No. 2. In ſhells from this lime, he will carry home, for every ten parts of refuſe, 45 of lime. But had he obtained a proper analyſis, he would have preferred the other; becauſe, for every ten parts of refuſe, he would have got *fifty* of lime. If Mr Headrick allows the poſſibility of ſuch a caſe occurring, he muſt allow his proceſs to be unſatisfactory. No farmer, ignorant of practical chemiſtry, can be ſuppoſed able to manage acid, muriate of barytes, ammonia and potaſh; all which he muſt uſe according to Mr Headrick's plan. *Adopting the uſe of theſe agents* (none of which are mentioned in A. S.'s *hints* of Mr Headrick's invention), a more certain way of determining the quality of limeſtone would appear to be, to burn a piece of the ſtone completely, diſſolve 100 lib. in an acid, and weigh the refuſe. Care muſt be taken to burn the lime thoroughly. It ſhould be firſt weighed, then ſlacked, and afterwards the reſt of the proceſs ſhould be gone through with great care.

I am extremely ſorry that it is not now poſſible for Pol-Œconomicus to read in your Magazine that I am by no means diſpleaſed with his raillery. Had it pleaſed Heaven to ſpare him, I ſhould have reckoned myſelf fortunate in having ſuch an antagoniſt in any point. You and your readers will have to lament his loſs; and, for my own part, I ſhall ever regret not having ſooner called him forth into the Magazine. I am, Sir, your obedient humble ſervant,

G. S. Mackenzie.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Power of Horſes in Drawing Throſhing-Machines, &c.

SIR,

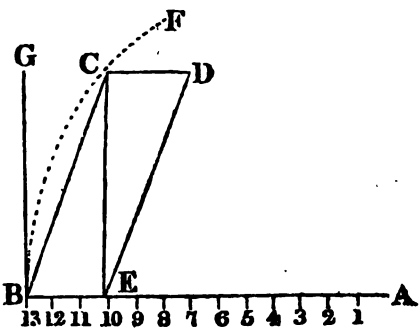
FLINT and ſteel in colliſion produce fire, which neither of them poſſeſs in themſelves. Your correſpondent T.—t. p. 50, in anſwer to my obſervations in Vol. V. p. 19, together with this reply of mine, will, I hope, induce ſome real mathematician to take up the matter in diſpute between us, and ſettle the queſtion on ſolid grounds. In the mean time, if T.—t. pleaſes, I am ready and willing to reduce the matter to a ſpecial caſe, and to appoint the very learned Profeſſor of Natural Philoſophy in the Univerſity of Edinburgh umpire between us, on condition that the loſer ſhall pay a rump and dozen to the Umpire, the Conductor, the Publiſhers of the Farmer's Magazine, and the winner, who ſhall name the time, place, and perſons who are to partake thereof. The general principle, not the abſolute quantum of loſs by obliquity, to be the point at iſſue.

Before entering on a reply to his ingenious letter, I moſt heartily and unequivocally give my warmeſt approbation to the idea, or rather the actual experiment announced in his ſecond ſhort epiſtle, of employing light ſhafts upon low ſtarts, for enabling the horſes to ſtop the machine at pleaſure. In my humble opinion the improvement is capital, and reduces the machine, with low ſtarts, to abſolute perfection, ſo far as it is capable of improvement in that reſpect.

I cannot, however, agree to the plan for ſtopping ſuch machines by long traces, led from breechings to the ſtart or lever in advance of the horſe: Becauſe, as the horſe moves in the ſegmemt of a circle, theſe traces muſt extend nearly to its quadrant, and muſt either hang ſo looſe as to endanger entanglement with the horſes legs when drawing, or, if light enough to avoid that inconveniency, muſt extend in the direction of the choid of a much greater arc than that ſubtended by the horſe, thus falling greatly within his line of draught, and impeding his exertions by preſſing him inwards.

The very ingenious device, for bringing the point of draught very near the utmoſt extent of the lever, is altogether nugatory and uſeleſs; for every mathematician will decidedly pronounce, that if the ſtout bar of iron were extended an hundred inches beyond the end of the lever, and curved back again to the only place from which the horſe can draw, *i. e.* oppoſite the original eye or ring, not one atom of power would thereby be gained to the horſe; and the only conſequence would be a prodigious expence of iron, and an additional weight upon the machine, increaſing its friction.

I now recur to the original question of most importance between us;—the loss of power in consequence of the obliquity, when horses draw by traces from low levers or starts. I have formerly stated myself to be no mathematician; but I have still some little recollection of the lessons of my youth, especially from that very great man our country has lately lost, Professor Robison of Edinburgh; and though I cannot pretend to demonstrate the case mathematically, I shall endeavour to state the matter in as clear popular terms as possible, by the help of a very simple diagram.



Take A, the centre of the horse-wheel, and A B as the entire efficient length of the start or lever, upon which the horse acts in traces fastened to the loop or eye at B; for it is evident that all beyond that point is intirely useless to his draught. The dotted arc, B F, is part of the circle in which the horse draws. Suppose C to be the centre of the horse's draught, or the point between his shoulders, and removed in consequence of the length of traces, swingle-tree, &c. 8¼ feet from B, the point of the lever to which he is attached. Let fall the perpendicular C E, from C, the point of actual draught, to E, upon the lever or start. Now, I affirm, the horse drawing obliquely from B, in the line B C, exerts a power exactly equivalent to what he would possess, if drawing directly perpendicular to A B in the line E C, which evidently cuts off *nearly* three feet from the efficient length of the original lever A B of 13 feet, reducing it to little more than 10 feet. Whereas, when a horse draws by small perpendicular shafts from a high start or lever, having B in the centre between them, that point becomes the actual place of his draught, and his efficient lever is full 13 feet.

To shew more clearly the effect of obliquity in draught, let us assume the two extreme cases. Suppose the horse to draw from B in a direct line towards A, he would only tend to press the horse-wheel against the centre. In the opposite direction, drawing directly outwards from B, he would only tend to overturn the horse-wheel, or to drag it from its centre. It follows, then, that, in every supposable obliquity towards one or other of those intirely useless lines of draught, or every deflexion from direct perpendicular draught as at B G, this power must be proportionally lessened; or, what amounts to the same thing, the efficiency

of the lever, upon which he acts, proportionally shortened. I do not take into consideration the increased friction at the centre, which must always be greater, as the draught is more oblique.

As your correspondent T.—t. seems displeased with the term *start*, used by me in my former letter, I have endeavoured to accommodate his taste, by substituting, or adding, *lever* in this letter. *Start*, however, is the technical expression of our millwrights in this quarter; and I make no objection to his term *bar*, though that rather applies to the levers employed at sea for working the capstan or the windlass.

With all due deference to T.—t., and unceasing good wishes to you and your excellent Magazine, I remain, &c. &c.

Berwickshire, 16th Feb. 1805. R. r. r.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Utility of a General Law for regulating Drainage in Scotland.

Sir,

In the progress of the agriculture of Scotland, I am inclined to think there is no epoch more memorable than that which brought to light sound notions upon the theory and practice of draining.

Without demonstrating to a certainty the precise climate of this country, or its extent of clay lands and plains, it must be acknowledged to be unfavourably circumstanced as to the former, and as to the latter, contains extensive tracts perishing by wet. On the other hand, an uneven surface, every where deeply indented by larger or lesser water courses, ravines, or furrows, insures, with a moderate degree of contrivance, success in every enterprize of draining.

The structure of the exterior of the earth has been of late admirably well explained to the sensitive organs by delineations of its sections in all variety of beds, and the operation of water upon them made manifest, whether in percolating the pervious strata, or resting upon the solid. Even those least familiarized with the study of any thing abstract, may, by these simple sketches, comprehend the mechanism of springs, and their formation and rise out of the earth, and may be said indeed to trace the subject to its fountain head. So far, therefore, every farmer may be his own draining doctor, and, except in very eccentric cases, design the plans for that species of improvement.

The second step, namely practice, for executing the work so as to make the most of the natural advantages, and overcome the natural difficulties of the situation, has arrived at a great degree of

of perfection, chiefly through the ingenuity of Elkington, whose head, more fertile than his tongue, operated upon a scientific comprehensive system, adapted to general use, which his elocution was unable to explain. Whether, therefore, it be in the design or execution of drains; such improvement has been made, that few great errors are likely to be committed in detecting the source of the wet, and remedying that evil.

It will be acknowledged, however, that in numberless situations where property is intermixed, the advantages of draining may be altogether denied, or imperfectly possessed, through the perverseness of neighbouring heritors commanding the level, *until a new law on that subject interpose the adequate relief.* In the neighbouring kingdom, the Legislature has provided a remedy for every case of this kind by its Commission of Sewers, which, if I understand aright, empowers the Commissioners, upon cause shewn, to carry the operations forward notwithstanding all opposition of proprietors. Public interest has in this instance taken the lead, and limited the rights of property, so that no ground shall be drowned by the invidiousness, inactivity, or apathy of the neighbourhood. A minute partition of property in many parts of England, its extensive flats, its slowly moving rivers, have no doubt been the stimulants to this very judicious enactment; and the benefit has been widely felt, by gaining great and fertile tracts of fens, banking out the sea, and confining rivers to a determined course, which before inundated the country.

To borrow and to lend in the necessaries of life, constitutes one of the chief benefits of society among individuals, as in polity it does among nations; and to borrow a commission of sewers from England, would be a loan as advisable for Scotland, as their borrowing a division of commons, or a valuation of tithes, would be from us.

I venture, therefore, to propose to the meetings of heritors of counties, when assembled at their head-courts of April and October, the following overtures for discussion and decision.

1st, Is not a general commission of drainage, under Parliamentary authority, a desideratum in the agriculture of Scotland?

2d, May not the Justices of the Peace, or Commissioners of Supply, constitute the board?

3d, May not they be empowered, at the suit of any one interested, to regulate and straighten the course of streams, direction of existing or projected drains, ponds and watering places; determine indemnifications, and the proportions in which these original operations, and the upholding them, shall affect the parties?

4*th*, May not their judgements be final, unleſs appealed from to the Court of Seſſion within three months after ſentence; ſuch appeal to be diſcuſſed ſummarily in that Court, as it does in diſputed votes; and, where affirmed, the appealing party to be invariably liable in coſts?

I flatter myſelf that theſe propoſitions are of ſo pleaſing a nature, as to require no more than a candid hearing, and fair ſtatement, to command univerſal aſſent. Sure am I alſo, that infinite benefit would thereby ariſe to almoſt every quarter of the kingdom, when put under the adminiſtration of diſcreet commiſſioners, eſpecially if empowered to conſult ſkilful farmers, or other expert men, when, in difficult caſes, they ſtand in need of advice. Relieved, by theſe means, from the malignant effects of the *emulatio vicinii* in our fellow-creatures, we ſhould only have to combat the obduracy of the inanimate creation, in our mires and marſhes, by much the moſt reclaimable of the two.

I remain your ſincere wellwiſher,

Ninewells, 12*th March* 1805. JOHN HOME.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On Steeping Turnip-Seed.

SIR,

As I wiſh to promote the uſefulneſs of your Magazine by every endeavour in my power, you will pardon me for troubling you with the few obſervations or ſuggeſtions which follow; and pray give them a place if they are thought worthy of notice.

It is generally allowed, that the pickling of wheat before ſowing prevents the crop from being ſmutted; and may not an experiment be alſo tried, to prevent the fly and other inſects from deſtroying the turnip crop, which ſo often occurs? Turnips not only form the leading part of the modern ſyſtem of cropping, but prove a moſt uſeful winter food for all kinds of cattle, and produce much good manure for the ſucceeding crops; therefore it is of the greateſt conſequence to know how to inſure and preſerve them againſt ſuch dangerous enemies. I know that flour of brimſtone blown upon wall trees, effectually deſtroys the inſects that would otherwiſe eat up the bloſſom; and am pretty certain, that if it were the practice to mix at the rate of two ounces of the ſame with each pound of turnip-ſeed, and cover them cloſe up in an earthen can, ſtirring them daily for four or five days previous to ſowing, that the young ſeedling leaves will retain ſuch a taſte of the ſulphur, as to prevent the inſects from meddling with them at all; and as the expence and trouble of ſuch an experiment is not worth mentioning, in compariſon to the benefit

ſit that may thereby be derived, I could wiſh it to be more gerally tried.

Eaſt-Lothian, Nov. 16. 1804. T. B.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Premiums offered by the Salton Farmers' Club.

R,

I OFTEN obſerve in the *Annals*, and other Engliſh publications, counts of proceedings at the agricultural meetings of our ſouthn neighbours, and judge that the following reſolutions of the rmers' Club at Salton, in Eaſt-Lothian, are equally well entid to public attention. You will therefore be ſo good as to inrt them in your firſt number, and oblige yours, &c.

A Friend to Improvements.

Eaſt-Salton, 21ſt March 1805.

THE FARMERS' CLUB, to encourage order and cleanlineſs in e villages within their diſtrict, offer,

A reward of one guinea for the beſt plan of a cot-houſe, in point of health and accommodation, (admitting the ſun and air in the day-time, and warm during the winter nights), particularly in the conſtruction of the fire-place, ſo as to give light and heat, with the leaſt expence of fuel.

For the three neateſt and cleaneſt cot-houſes upon the old conſtruction, to be judged by a ſelect committee, (at their quarterly meeting, 23d Auguſt)—

Thirty ſhillings for the firſt;
A guinea for the ſecond;
Half a guinea for the third.

N. B. The walls within are to be white-waſhed with lime and water, well mixed with ſand; the furniture taken out and ſcoured on the green, the midden and pig-ſtye placed behind the houſe, in a corner of the yard, to entitle the cotter to appear as a candidate for any of the above premiums.

For the beſt method of deſtroying the moſt common and hurtful weeds—To the cleaneſt farm in that reſpect, (ditches, ſides of hedges, and corners of fields, included), upon the report of a committee of inſpection, a medal to each, of the value of one guinea, with an inſcription.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Account of a Plough lately invented for Water-Furrowing Land in a complete manner.

SIR,

I TAKE this method of making the public acquainted with the late invention of a plough for clearing the furrows of wet and clay lands after ſowing wheat or other corns thereupon, by Mr John Gladſtones, mill-wright in Caſtle-Douglas, which will be found to be of infinite advantage to all farmers who have lands of this deſcription.

The method I formerly took to clear the furrows of my ridges after I had wheat or other corns harrowed in, (the ſoil being a ſtrong ſandy clay), was the following:—I firſt run the double-boarded plough once, or otherwiſe the common plough twice, up every furrow, and then ſhovelled the furrows neatly from one end to the other; a very tedious and expenſive, although abſolutely neceſſary, operation, particularly after wheat ſowing. Mr Gladſtones happening to call here laſt autumn, when I had three or four men buſily employed in that operation, told me he thought he could eaſily make a plough that would do the buſineſs, by once going up every furrow; and, deſiring me to take a ſhovel, and form two or three yards of the furrow exactly after the manner I would wiſh to have the whole done, which I accordingly did, forming it as neat as I poſſibly could, he took the dimenſions of it exactly, and, to my aſtoniſhment, in two days thereafter made a plough which, upon the very firſt trial, much exceeded my expectations. It deepens and clears the furrow, making it the exact ſhape of the ſmall piece I formed for a pattern, not leaving a ſingle clod the ſize of an hen egg, from the one end of the furrow to the other. I am convinced her firſt day's work ſaved me more than her original coſt. Another great advantage of this plough is, that it ſmooths the edges of the furrows ſo completely, that there is no danger of the clods tumbling in after the operation; which renders them much eaſier to reap and plough afterwards, than when they are formed with the ſhovel.

I cannot give ſuch a deſcription of it as would be underſtood. Suffice it to ſay, it is much larger in ſize, and quite different from the common double-boarded plough, although ſtrong and ſimple in conſtruction. I generally draw it with three horſes abreaſt: one goes in the furrow; the other two, one on each ſide; and one man directs both horſes and plough. Two ſtout horſes, however, will draw it eaſily; and if the land is ſoft, and in danger of being poached, they may both go in the furrow, the one before the other, by means of traces; but as I have never

ver tried them that way, I only give my opinion, not knowing, from experience, how it might anſwer.

Any perſon wiſhing to have one, may apply to Mr Gladſtones: the coſt will be about 4l. or 4l. 10s. But as the carriage might come very high to thoſe at a great diſtance from Caſtle-Douglas, he thinks he could make a ſmall model of one, which would coſt about a guinea and a half, with directions along with it, that would enable any good tradeſman to make a large one from it. If you think the above worthy of a place in your uſeful Miſcellany, I may perhaps trouble you, at ſome future period, with an account of ſome other of Mr Gladſtones' improvements in farming utenſils. I am, Sir, yours, &c.

Grange of Cree, 1805. THOMAS HANNAY.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Obſervations on Different Branches of Machinery, by Mr Farey, junior.

SIR,

I AM induced to the liberty of troubling you, principally in conſequence of Mr FINDLATER's account of JARDINE's *bellows-pump*, and your note thereon in the laſt Number, (p. 25,) in order to inform that very ingenious gentleman and your readers, that a ſimilar pump, or machine for raiſing water, is deſcribed and drawn in LEUPOR's *Theatrum Machinarum Hydraulicarum*, publiſhed in 1724, which I ſome time ago ſaw in the library of the Society of Arts. I have alſo heard that *M. Deſagulier* has deſcribed a ſimilar machine. The ſpeedy decay of leather, when ſituate as in Mr Jardine's pump, would perhaps make it of inferior uſe to the common pump, and to many other engines now in uſe, for raiſing water.

Your correſpondent T—t, at p. 50, ſeems to have miſapprehended what R. r. r., in vol. V. p. 19, ſaid might be demonſtrated reſpecting the effective ſtrength of horſes in drawing a thraſhing mill, either by traces, or immediately from the limbers fixed to the working lever of the mill. He intended to deſcribe the difference of effect, between the horſe drawing in *a chord within the circle*, or in *a tangent without the circle*. To make this plainer to ſuch as are unacquainted with mathematical principles; in any horſe-wheel which has been at work, meaſure the diſtance of the middle of the tract deſcribed by the horſe's feet, from the centre of the mill-ſhaft, which is the effective leverage for turning the mill; and this will in every caſe, but where the horſe draws between and immediately from the limbers, be found conſiderably ſhorter than the ſtart or lever, to which the whipple-tree of the chains

chains is attached; and this increaſingly, with the greater length of the traces, even to a much greater loſs of power than R. r. r. deſcribes. A competent mechanic, in contriving a thraſhing-machine, would firſt aſcertain or determine the *velocity* with which the beaters ought to move, to thraſh cleaneſt and with the greateſt eaſe, and the *velocity* with which the horſes or oxen, intended to move the ſame, ought to walk, when drawing to the greateſt advantage; and then, by a judicious arrangement of the number of wheels, the number of teeth therein, and circumference of the drum, combined with a certain circumference of tract which is to be trodden by the horſes, adapt the velocity of the beaters to that of the horſes. The length of the drum, or breadth of corn thraſhed at once, will depend on the number of horſes to be uſed. Horſes work to diſadvantage, if the circle in which they walk is too ſmall; hence, experience has pointed out the propriety of attaching them to limbers fixed below the lever, in order that the horſe may walk in as large a circle as the building or poſts which ſupport the upper centre of the mill-ſhaft will admit; but the horſe in this caſe draws uneaſily, owing to one of the limbers deſcribing a circle ſo much larger than the other. In *low ſtarts* (as your correſpondents provincially call them), there is generally no building or poſts to limit the length of the ſtart or lever; but the ſame ſhould be made as long as the ſtrength and dimenſions of the materials will admit; and the horſes would be properly attached to the *very end* of the lever, as ſhewn at p. 51; but the *iron* ſhould by no means be bent, as T—t has recommended, but ſtand at right angles (or nearly ſo) to the lever: for the effect of his iron would be ſomewhat more diſadvantageous, than if the draught of the whipple-tree or ſhafts (ſee p. 52.) had been by a pin through his third bolt hole from the end; in which caſe his propoſed iron-work is evidently unneceſſary. Mr T—t's words, 'The nearer the end of the ſtart can be brought *to the machinery*, the more purchaſe the horſe will have,' is quite unintelligible to me, as it alſo appears to ſome of greater experience and knowledge than myſelf, to whom I have ſhewn it. While I am upon Mr T—t's letter, permit me to mention, that Mr SALMON of Woburn Park (mentioned vol. V. p. 473.), the gentleman who conſtructed the *piſe* buildings, deſcribed vol. III. p. 400. l. 6. has ſo greatly improved the French proceſs recommended by Mr HOLLAND, that ſeveral of his *piſe* buildings (particularly the houſe in which he reſides) are quite equal to ſtone; and that all the difficulties to common mechanics or labourers in the French proceſs are removed, by the very improved and ſimple moulds and apparatus invented by Mr SALMON.

With your permiſſion, I will remark on the calculations of a correſpondent

correſpondent at p. 43, reſpecting the pits neceſſary to contain the turnips of 15 acres of ground. Suppoſing the crop 33½ tons per acre, and that a turnip is about $\frac{9}{10}$ths of the weight of its bulk of water, we have $62\frac{1}{2} \times \frac{9}{10} = 56\frac{1}{4}$, or ½ cwt., the weight of a cubic foot of turnip nearly; and 33½ tons, or 670 cwt., divided by ½, gives 1340 cubic feet of turnips per acre; and on 15 acres, there will be 20,100 feet, or 744 cubic yards, *not one tenth part* of the bulk mentioned by your correſpondent. I am aware that this calculation may not be altogether accurate, and wiſh that ſome ingenious agriculturiſt would communicate the actual cubic meaſure, as well as weight, of an average crop of turnips; and the ſame of potatoes, carrots, &c. I am, Sir, your obedient humble ſervant,

Weſtminſter, 14th April 1805. JOHN FAREY, junior.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

General Remarks on the Corn-Laws, and on the Propriety of the Alterations made upon them laſt Seſſion of Parliament.

SIR,

I REQUEST a corner of your uſeful Publication for a few remarks on the alarm taken by many perſons, on account of the alteration made laſt ſeſſion of Parliament in the corn-laws. In your laſt Number, a very diſtinct and correct ſtatement of the increaſed expences of farming is given, though I am afraid ſtatements of that nature will not have the weight they deſerve in the manufacturing diſtricts, where an idea ſeems to prevail, that the increaſed expences, attendant upon the growth of grain, ſhould not, in the ſmalleſt particle, be returned to the grower, by any increaſe in the price of the commodity.

It is now about fifty years ſince I entered into the farming line, during which period I have paid conſiderable attention to theſe matters. In the firſt ſix years of my farming, the annual expenditure for every article, rent and family expences excepted, did not exceed twenty-two ſhillings per acre on what was kept under the plough; but, in the laſt ſix, the expenditure for the ſame purpoſes exceeded fifty-five ſhillings, whilſt my exertions in labouring, manuring, and every other operation were, as you may conceive, greater during the firſt than the laſt period; for my blood, which was then warm, ſtimulated me on to action, but is now cool, and flows with leſs impetuoſity, conſequently my rage for enterprize, or, in other words, for laying out money, has greatly abated. The beſt ploughman's wage was then three pounds five ſhillings a year, now from eleven to twelve pounds; a houſe-maid's forty ſhillings, now more than double that ſum; a labourer ſevenpence per day, now twentypence; a cart of rough dung

dung threepence and fourpence, now eighteenpence; lime ſhells tenpence per boll, now twentypence and two ſhillings, and the cart not ſo well filled with four bolls as formerly with three. Let any perſon of common ſenſe reflect upon theſe circumſtances, and ſay why the price of grain ſhould remain ſtationary, when the expence of raiſing it is increaſed ſo aſtoniſhingly.

That there may be ſome parts of our corn-law ſyſtem of an exceptionable caſt, need not excite ſurpriſe, conſidering the various amendments which it has, at different periods, undergone. Every age has produced men who thought themſelves wiſer than thoſe who preceded them; and, not unfrequently, in attempting to remedy one error, have committed another. Surely, however, the alterations made in the rate of prices for regulating the importation of grain, do not afford the ſmalleſt ground for complaint; the advance does not exceed 8 *per cent.* above the rates fixed in 1792; whereas the increaſed expence of raiſing grain ſince that period, is not leſs than 60 *per cent.*, and in ſome particular ſituations much more. Now, as the conſumer is receiving from 50 to 70 *per cent.* more for his labour, it does not appear that 8 *per cent.* advance upon the importation rates can be conſidered as a grievance in the ſlighteſt degree, ſeeing that the relative proportion betwixt income and expenditure is altogether in his favour. Again, to attribute the prices of grain, for ſome months paſt, to the alteration in the corn law, diſplays a degree of folly, or ſomething worſe, that can hardly be accounted for; as the bill complained of has not as yet come into action; nay, more, the high price which grain has bore for ſeveral months paſt, not only affords a convincing proof of the importation rate being moderate, but alſo diſplays, in a clear point of view, what little dependence can be placed on our receiving either a regular ſupply of foreign grain, or having it on moderate terms. In place, therefore, of throwing impediments or obſtacles in the way of Britiſh agriculture, which would be the caſe were the old ſtandard re-eſtabliſhed, every encouragement ought to be given for increaſing home produce, ſuch being the alone means of procuring ſufficient ſupplies to meet the public conſumption. Our dependence upon foreign countries is already too great, and thoſe who attempt to prevent the farmer from obtaining a fair remunerating price, muſt be conſidered as wiſhing to increaſe that dependence, though perhaps not aware of its concomitant evils.

It is not to be expected that attention and capital will be devoted to agriculture, unleſs there is a probability of receiving an adequate return correſponding in ſome meaſure to the increaſed expence of farm culture. If the price ſhould be ſhort of the outlay, then land muſt

muſt be left either in its natural ſtate, or kept in paſture graſs, when its produce will not afford one-third ſubſiſtence for the people that might be obtained, were it cultivated in a ſuitable manner. It requires good ſoil to produce 10 ſtone of butcher-meat, either beef or mutton, or 160 lb. *per annum*; whereas that quantity of ground, if employed in raiſing grain, even diſcounting a year in four for rendering it productive, would give four bolls of diſpoſable grain annually, which, at an average of different grains, would yield 18 pecks of meal per boll, or 570 lb. altogether. Should low prices, therefore, prevail, I mean prices below what corn could be raiſed at, a ſerious ſhortcoming of the food of the people would inevitably take place, not to be remedied by any degree of importation, which could conveniently be accompliſhed. Trade and manufactures very juſtly claim every attention; they are of the utmoſt importance to the country, but ſo is agriculture. The one cannot be promoted at the expence of the other, without detriment to both; and an over eagerneſs on either ſide for gaining the advantage, muſt ultimately defeat its own purpoſe. Should the petitioners againſt the late corn law prove ſucceſsful in their application to Parliament, I think it is doubtful whether trade and manufactures would be benefited thereby, though it is certain that agriculture would be manifeſtly injured. Experience proves, that cheap labour is not the conſequence of cheap living; nay, the reverſe has generally been the caſe; for the price of labour, like that of every other commodity, as you have more than once obſerved, is regulated by the quantity in the market when compared with the extent of the demand. I am far from entertaining the idea of oppreſſing mankind to render them induſtrious; yet it is plain that a ſtimulus is neceſſary to excite exertion, and that, without an impelling cauſe, the indolence natural to man would often cauſe him to neglect the labour he is capable of performing, eſpecially if he could receive the neceſſaries of life on terms which do not require any uncommon exertion. If I am right in this view of the ſubject, a depretiation in the price of grain would have for its concomitant an increaſe in the price of labour, becauſe leſs of the latter would be offered in the market.

I have conſtantly obſerved, that any great fluctuation in the price of grain has always been baneful to the comfort of manufacturers, and the people in general. Such fluctuations are alternately the ſource of idleneſs, diſſipation, and miſery. During the greateſt cheapneſs, little or no proviſion is made for the dearth that may ſoon follow; and the more we depend on foreigners for ſupply, whatever confidence may be placed in it, theſe evils will increaſe in magnitude. It is only from augmenting

the quantity of home produce that any alleviation can be gained; but, unluckily, the phantoms of ſpeculation, regrating, foreſtaling and hoarding, ſo haunt the public mind, that this important object cannot be viewed through a proper medium. Were theſe viſionary deluſions ſwept away, and an energetic application made to the Legiſlature for a diviſion of common land, and a commutation of tithe; and were ſafety inſured to thoſe who preſerved the overplus of plentiful years for ſupplying the deficiency of more unfavourable ones, the people in this country, even were population much more numerous than it actually is, might at all times be furniſhed with a full ſupply of food and raiment, the only two abſolute neceſſaries of life. Though ſuch meaſures would add little to the patronage of the Crown, the miniſter who brings them forward will ſerve his country more eſſentially, and be entitled to greater renown, than if he had conquered a foreign kingdom.

It is truly lamentable, in travelling over the ſouthern parts of this iſland, and reflecting upon the diſtreſs which the people ſo frequently labour under from a ſcarcity of bread corn, to obſerve the great extent of good ſoil, preſenting itſelf every ſix or eight miles, lying in an unproductive ſtate. Would theſe humane gentlemen, whoſe philanthropy leads them to form ſo many ideal plans in times of ſcarcity, but direct their benevolent endeavours to remove the fetters which bind ſuch large tracts of land in a ſtate of ſterility, they would be entitled to the praiſe of every true friend of his country. It is wonderful indeed, when we are ſo eager about reſorting to foreign countries for a ſupply of food, that the means of relief, which may be found at home, ſhould in a great meaſure be neglected and deſpiſed.

How far bounties on exportation might be neceſſary at one period, for the encouragement of agriculture, ſhall not at this time be inveſtigated. We now find, from dear bought experience, that the demand at home, every three or four years, greatly exceeds the quantity of corn raiſed in the country. Under this circumſtance, bounties are evidently unneceſſary; nay, the granting of them would be a loſs to the country in a double ſenſe, in ſo far as a premium would be given to have corn taken away at half price in one year, and then another premium given, perhaps in the ſubſequent year, for bringing it back at double the price. Could the people be led to diſcern their own intereſt, and allow capital to be laid out in the purchaſe of grain for ſtoring, in place of giving bounties for ſending it away, no want would ever be felt, unleſs we were viſited with a ſucceſſion of bad ſeaſons more numerous than hitherto experienced. In this way, a market at home would never be wanting in the moſt plentiful year, and the great

great object of thoſe who contend for a bounty would be completely accompliſhed. I am, yours, &c. T. S. S.

P. S.—Some of your correſpondents ſeem to entertain an idea of danger from the uſe of urine in pickling ſeed-wheat, in the event of its not being ſown immediately. To make them quite eaſy on that head, I mention, that laſt ſpring I planted twenty-four grains of wheat that had been pickled in November preceding, and alſo twenty-four grains of new thraſhed and pickled. Of the former, twenty vegetated and produced ſtems; and of the latter, only nineteen. Indeed I do not ſteep my ſeed, but only wet it thoroughly on the barn floor; and I never had wheat which a merchant complained of as being blacked or ſmutted.

NOTE BY THE CONDUCTOR.

We embrace this opportunity of expreſſing our obligations to Mr T. S. S. for favouring us with ſuch judicious remarks on the corn laws of this kingdom, and cannot avoid noticing that they are very much in uniſon with thoſe long entertained by us on that important ſubject. Mr T. S. S. ſupports the act of laſt ſeſſion becauſe it is wiſely calculated to enſure a preference, to a certain extent, in the home market to the home agriculturiſt; and the arguments adduced by him prove, in the moſt ſatisfactory manner, that the preference beſtowed cannot, in the ſlighteſt degree, be injurious to the conſumer, ſeeing that his relative abilities to meet it are much more than proportionally increaſed by the advance which has actually taken place in the price of labour. Again, Mr T. S. S.'s ideas with regard to bounties on exportation appear to us altogether conſiſtent with the political and rural ſtate of the country at the preſent period. Indeed, on an average of twenty years, we have had no corn to export, conſequently holding out bounties is at the beſt but an *ignis fatuus* meaſure; nay, it may be conſidered in a worſe light, as affording room for fraud, and for needleſsly adding to the public expenditure. His plan of ſtoring up corn in a plentiful year to ſupply the deficiency of adverſe ones, is wiſe and ſalutary, and, if acted upon with judgement and energy, would remove every fear of agriculture being leſſened in the event of our being deprived of a foreign market in plentiful years, and prevent a continuance of that recourſe which Britain, of late, has unfortunately had to foreign countries.

But has this recourſe been occaſioned by any diſcouragement thrown in the road of the Britiſh farmer? We are inclined to think the contrary, and believe that greater encouragement could not have been obtained in conſequence of the moſt extenſive bounty, than what has been got from the prices which agri-

culture

cultural produce has brought in the home market. The Britiſh farmer, under exiſting circumſtances, ſtands in need of no other aid than protecting laws to prevent importation when prices are below par, or, which is nearly the ſame thing, protecting duties according to a proper ſcale on all corn imported from foreign countries.

N.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Account of the Management of a Grazing Farm in Romney Marſh.

SIR,

I MET with your Magazine two years ſince at Meſſrs Longman & Rees, and was ſo well pleaſed therewith that I purchaſed it from its commencement in 1800, and have taken it in ever ſince; though it is generally a month after publication before it reaches my place of reſidence in the county of Kent. If you think the following particulars of the management of a large grazing farm in Romney Marſh worthy of inſertion, you are welcome to it.

The ſecond week in November the rams are put to the ewes, in the proportion of one to fifty, and are taken off the ſecond week in December. The ewes lamb the ſecond week in April. When the lambs are ten days or a fortnight old, they are caſtrated, ear-marked, and a pitch mark put on them, to denote to whom they belong. They are ſheared about three weeks after the ewes, viz. the third week in July, weaned the latter end of Auguſt, and ſent out the firſt week in September to the upland farmers, to keep on turnips, paſtures, &c. till the 5th of April, at 4s. 6d. to 6s. per lamb; and then, being one year old, are provincially called *tags*. They are ſorted in October. The ewe tags (except ſuch as are defective in carcaſe, wool, &c.) are brought into the ſtock of ewes, to make up the deficiency of thoſe turned off to fatten, which are the ewes that have had lambs three times, and others defective in wool, carcaſe, &c. The wether tags are got into the fattening ground by degrees, as the fattening ſheep of the preceding year are ſold; ſo that the ſtock on the land may be divided into three parts—fattening ſheep, ewes, and tags. The fat ſheep are ſold from ſhearing time till December; the wethers being two and a half years old, and the ewes provincially called *barrens*, of all ages. This, I may add, is the general ſyſtem of the Marſh, except where graziers have no fattening land; in which caſe, the wether lambs and old ewes are ſold to the upland farmers; but the great object is to fat what you breed. In the ſpring, Suſſex and Welch beaſts are bought and ſold fat from September to December;

cember; and ſome of the farmers, in return for taking the lambs, ſend bullocks from the yards to be kept during the ſummer, at different prices per week, according to their age and ſize.

The arable land is a clay loam, wet and tender in winter, runs like lime after froſt, and in ſummer (unleſs there are frequent rains) is as hard as rock ſtone; but it is deep, rich corn land. Courſe of crops as follows:—Wheat, Beans, Peas or Clover, Wheat; Fallow, if the land, from wet ſeaſons or otherwiſe, has got foul, or Beans, Peas or Clover, as before (dunged for); and Wheat again. When a fallow is made, the wheat ſtubble is ploughed in before Chriſtmas, and not ſtirred again till April, when the land is croſs-ploughed; and from May to September a third, fourth, and fifth ploughing is given. After this it is rolled and harrowed as fine as it can be got, and then ploughed the ſixth time for wheat; ſowed on the furrow and harrowed in, before the 10th of October. The main point is to work it about in the hot months, to get warm by the ſun, and to kill the weeds. The beans and peas are put in by the middle of March. As ſoon as up, they are harrowed; then hoed; then horſe-ſkimmed: in ſhort, they are never left till too high to get amongſt. As ſoon as they are harveſted, the ſtubble is broad ſhared, the weeds harrowed together and burnt, the land afterwards ploughed in, and a ſecond ploughing given in October for wheat. The clover is ſown about old Ladyday among the wheat.

In my humble opinion, if farmers of different ſoils and ſituations were to ſend you an account of their management, a great deal of uſeful information might be obtained, which, through the channel of your Magazine, might be tranſmitted from one diſtrict to another. I hope you will arrange this in a ſuitable way, and, if you approve of it, ſhall at ſome future period ſend you a general account of Romney Marſh, and of ſome important works carrying on here. I remain yours, &c.

A Marsh Grazier.

FOR THE FARMER'S MAGAZINE.

Account of Mr Shirreff's Oſier Plantations at Captainhead, Eaſt Lothian, communicated by him to the Society of Arts, &c. London.

Meum inter Salices lenta ſub vite jaceret;
Serta mihi Phyllis legeret, cantaret Amyntas. Virg.

Beneath the waving willow's ſhade,
And the cluſtering grape's green bowers,
Amyntas tuned his pipe and played—
While Phyllis decked my head with flowers.

To a mind deeply impreſſed with the high national importance of encouraging the domeſtic cultivation of every ſpecies of uſeful

production of the ſoil of theſe iſlands, it affords moſt ſenſible delight to notice the encouragement and flattering rewards extended to agricultural purſuits by the Society for the Encouragement of Arts.

It was not, however, with a view to obtain any premium, that the ſalictum deſcribed in the ſequel was eſtabliſhed, but as the moſt profitable mode of employing the ground it occupies. Indeed, it was *only in the courſe of laſt ſummer* that the writer of this little Eſſay came to know that the Society had offered any premium for the cultivation of oſiers. When he comes forward in competition, he muſt reſt his humble pretenſions to reward on the ſimplicity, and perhaps correctneſs of his mode of culture, with the value of produce in conſequence thereof, and not on the extent of ground planted with oſier.

The ground planted in winter 1801–1802 contains, as by certificate under cover with the letter which accompanies this, ſeven acres two roods and one pole. It is ſituated in a bottom ſheltered from the weſt and north winds, by hedges and hedge-row trees, but expoſed to the ſouth and eaſt, the fences being low on theſe ſides. The ſoil may generally be denominated a clayey loam of a coarſe quality. It had probably, till about thirty-five years ago, been under natural meadow, and a conſiderable part of it was ſubject to be flooded in winter. An open drain or ditch, ſix feet wide and three and a half deep, cured it of this inconvenience. It had afterwards been in the rotation of crops common to the practice of good agriculture in the diſtrict, and frequently laid down to paſture in excellent preparation for ſeveral years, at different times, ſince that period. The paſturage, however, was but coarſe, and crops of grain, excepting oats, were ſeldom valuable.

In ſpring 1801, it was carefully underdrained, having been ploughed the preceding autumn, to mellow the ſoil in preparation for turnip and *roota baga*, for which the piece was afterwards fitted by repeated ploughings, &c. and manured with about ſixteen double-horſe cart-loads of good ſtable-yard manure to the ſtatute acre. The turnip and *roota baga* being drawn in October and November, about the 1ſt of December 1801 the planting commenced, the land having previouſly been ploughed up, with a deep furrow, into ridges, or beds, eighteen feet wide. The rods uſed for plants grew immediately contiguous, on a part of the ſame field, on which a plantation had five years before been eſtabliſhed. Theſe rods were of great length and conſiderable thickneſs, and would have made good hoops. They were cut from the ſtocks, chopped into pieces of a foot long, on a *ſmooth* block of wood, by a light and very ſharp hatchet, and were alſo put into the ground all for two ſhillings a thouſand cuts. The

hands

hands of the planters were guarded by a piece of neat's leather, to ſave the palm, with a hole in it for the thumb, to keep it in its place, and fixed on the hand by a ſtrap of the ſame ſort paſſing round it. A common garden-line, about ſixty feet long, divided with ſlips of leather at the diſtance of eighteen inches from each other, was uſed in planting. Two planters began at the middle of the line, and proceeded, ſticking in the cuts, towards the extremities, where they generally arrived at the ſame inſtant, and ſhifted the line to new ground, a meaſure of eighteen inches ſtanding at each end to determine the diſtance between the rows, ſo that the plants ſtand eighteen inches apart, in every direction. The cuts were ſtruck off aſlant, and puſhed into the ground, with the ſlanting face made by the hatchet turned downwards, leſt rain ſhould run into the pith, and rot the ſtock. The plants or cuts were put in ſloping to an angle of about 75 degrees, and almoſt to the ſurface of the ſoil. An inconvenience, however, not expected at the time of planting, aroſe from puſhing the cuts ſo far home; and the advantage of eaſily preſerving a handſome ſtock or head for ſeveral immediate ſucceſſive years, was in a great meaſure counterbalanced by the tender ſhoots ſpringing at and under the ſurface, being expoſed to the attack of grubs, in the manner that grain is in May, as was the caſe in ſome ſpots of the plantation under deſcription. The lower the ſhoots come off the ſtock, the more readily do *ſlugs* alſo find acceſs to them. From all his experience, the writer conceives it ſafer to make the cuts from fifteen to ſeventeen inches long, and allow four or five of theſe inches to remain above ground, to be cut over by the ſurface of the ſoil, when the heads of the ſtocks, in a ſeries of years, ſhall have become too buſhy. By this operation, the vigour of the plants is renewed in the moſt decided and effectual manner. An inſtance of its efficacy came to the writer's knowledge about two years ago.

In the month of May laſt, the whole ground planted during the preceding winter was hoed over, the ſurface being completely moved to the depth of an inch and a half, for five pounds ten ſhillings, by the piece. The ground being then remarkably dry, ſtrong heavy hoes with long heads and narrow faces were uſed. It was hoed again in June, for two pounds ten ſhillings, with Dutch or ſhoving hoes. This operation made the ſurface as fine and clean as any garden ground. The ſhowers in July, and hot weather in Auguſt, bringing up a new fluſh of annuals, made it neceſſary to hand-weed the whole, about the laſt week in Auguſt, and firſt of September. The hand-weeding was performed chiefly by women and children, at 4d. to 7d. per day, and coſt one pound thirteen ſhillings. In ſome places young plants of the ranunculus repens made their appearance, no doubt from latent ſeeds. This

being a perennial plant, and growing cloſe to the ſurface of the ſoil, the Dutch hoes were applied a ſecond time, with which the plants of it were cut over below the bulbs: this coſt about ſeven ſhillings more.

The writer had planted about five ſtatute acres, at two different periods prior to 1801, with oſiers. Theſe have, one year with another, *neated* fully eighteen pounds ten ſhillings an acre. About three quarters of an acre were reſerved ſtanding three years, for cuts to the ſeven acres two roods and one pole eſtabliſhed laſt winter: the remaining four and a quarter acres neated one hundred guineas laſt ſeaſon, paid at Candlemas for one year's growth, deducting about two pounds ſeven ſhillings for hoeing and trimming the preceding ſpring. The whole oſier ground in the writer's poſſeſſion, and which extends to twelve and a half acres ſtatute meaſure, including the ground planted laſt winter, is to be cut this November and December 1802, being all a ſingle year's growth. The price is two hundred and twenty pounds, to be paid at Candlemas next; and, if not all cut before next Chriſtmas, by ſpecial agreement, the price is two hundred and fifty pounds.

The ſorts of oſiers in the writer's plantations are, the viminalis or common; a variety with darker-coloured bark, and ſlenderer ſhoots, more eſteemed. Another ſort the writer had originally from Surry, the leaves of which are large, long, ſharp-pointed, ſerrated, of bright green, and ſmooth on both ſides: the bark is reddiſh, where expoſed to the ſun and air. The ſhoots are thick at the lower extremity, tapering much towards the point. A fourth ſort is a valuable oſier with bark of a duſky aſh-colour, and as it were fluted in the longitudinal direction of the ſhoots, towards the ſmaller extremity; the leaves are ſerrated, pale green, and ſmooth on both ſides. A fifth kind, much reſembling that laſt deſcribed, the leaves of which are alſo pale green, ſmooth on both ſides and ſerrated, but narrower, ſmaller, and ſharper-pointed. Its bark is not ſo duſky; it grows taller, and produces more ſhoots than that laſt deſcribed; and though they are good twigs, yet they are rather inferior to thoſe produced by the former of the two laſt mentioned. Theſe are the principal varieties compoſing the plantation ſubmitted in competition. There are alſo a ſmall patch of the golden willow, and another of what is called the packthread.

The whole of theſe Oſier grounds are ſo ſituated, that water may be thrown over them at pleaſure, for a ſum of money under five pounds: not that there is as much water as would ſerve to refreſh the whole at once in dry weather in ſummer; but only each bed in rotation; a continual ſupply being afforded by ſtrong ſprings carried off by covered drains from fields more elevated.

This

This improvement is meant to be put in practice next ſummer; for although wet ground is by no means neceſſary to produce good oſiers, water *at command* is by the writer of this Eſſay conſidered of no ſmall importance to the whole vegetable world. It is from the luxuriant growth of part of his principal plantation, to which water is given at will, that the writer concludes in favour of watering in dry, hot weather. The part alluded to is a bank of good earth thrown out of a deep ditch or open drain, that ſkirts the whole of the north and weſt ſide of the ground. This bank is about four hundred yards long, and on an average may be three and a half broad. It had for many years been covered with thiſtles, docks, hemlocks, &c.; and though theſe had been frequently mowed over, and more than once were grubbed up with the ſpade, and hoes made for that and ſimilar purpoſes, they ſoon again became a nuiſance. In the winter of 1798, it was trenched to the depth of two ſpades and a ſhoveling, and planted with oſiers. The water has been ſent in another direction in ſevere weather, and in very dry, hot weather, is again turned into the drain immediately behind the bank, and part of it into a ſmall cut on the ſouth ſide in front. On this bank, formerly a neſt of weeds, the writer has reaſon to think more value has grown every year ſince it was planted with oſiers, than on any piece of land of the ſame extent, within ſome miles of it.

The principal errors into which moſt perſons fall who attempt to eſtabliſh plantations of oſier, ſeem to be the following:—employing improper ſoil, peat earth, perhaps, or poor bog; imperfect, or perhaps no preparation of the ſoil, though proper in other reſpects; bad, or uſeleſs ſorts planted; too few cuts put into the ground; want of culture, particularly during the firſt ſpring and ſummer after planting; allowing the ſhoots to be cut over after Chriſtmas, and before the middle of March; which may be the cauſe of the ſtocks being much weakened by hard froſt ſucceeding heavy rains immediately after the twigs have been cut, and before the wounds from the knife are healed up. If it is expected to rear the fineſt and moſt valuable twigs, the land muſt be cured of chilling, weeping ſprings; and if the ſoil is not of conſiderable richneſs, it muſt be made ſo with manure. Moderate moiſture is favourable to the production of fine twigs, but water *continually* ſtagnant may be conſidered as ruinous. The writer has ſeen good oſiers grow where water ſtood in the bottom of an old ditch during the greater part of the winter months, but thinks that water continually ſtagnant is very deſtructive in ſummer, by preventing the wood from ripening; and he apprehends that where good oſiers grow in water, the roots muſt reach ſound, dry ſoil, immediately contiguous, which was the caſe in the inſtance mentioned above; for the ſoil is dry, and moderately rich

alſo, on each ſide of the ditch. It may be alſo conſidered neceſſary to trim and dreſs the ſtocks from decayed wood, and to leave only as many buds on each as you think the plant will bring to good perfection in length and ſtrength of ſhoot; cutting down the ſuperabundant ſtumps to the old wood; extirpating the weakeſt ſhoots or ſtumps; and ſeldom leaving more than two buds or eyes on thoſe you make choice of to ſtand to produce next ſummer's growth.

This operation ſhould be performed in November, or in the beginning of December; or in the end of March or beginning of April; going regularly over the plantation, with a ſtrong, ſharp pruning knife, examining every ſtock with attention, and trimming it to the beſt advantage. All this can be done for a trifling expence, if the ſtocks are trained from the beginning, and regularly and carefully trimmed every time the plantation is cut over. Inſtead of an infinite number of ſmall weak ſhoots, the longeſt probably little above four feet long, as may be obſerved in plantations where no attention is paid to training and trimming the ſtocks, or pains taken to keep down weeds and graſs, by careful and regular hoeing: the writer, by purſuing a different and oppoſite management, has the ſatisfaction to ſay, the ſhoots on his plantations of oſiers, eſtabliſhed prior to 1801, are from four to nine feet long, and of the beſt quality. Where any plants have failed, their place ſhould be early ſupplied; that is, next ſeaſon, as ſoon as the plantation is cut over. Pieces two feet and a half long may be uſed for cuts, allowing eighteen inches to remain above ground, to ſecure air and head-room during the following ſummer. Indeed, a greater length of the rod put in would afford theſe advantages ſtill more decidedly: but it is conceived the ſuperior power that would thereby be given to the winds to agitate the roots, would counterbalance the benefit of the additional air and head-room, which by this means might be obtained.

The writer is of opinion, that either the method he adopted, of taking a crop of turnips, and drawing and ſtoring it, or what he practiſed on the part of the ſame ground planted in the winter of 1796–1797, viz. ſummer-fallowing the ground, and manuring it the preceding ſummer, or elſe trenching the ground where the depth of ſoil will allow, will prepare ground to carry oſiers with a reaſonable proſpect of ſucceſs.

He alſo conceives the value of the produce of his plantations, and thriving ſtate thereof confirmed by the certificates and moſt reſpectable reference, to ſatisfy the Society of the price he has ſold it for, which accompany this eſſay, tend ſtrongly to prove from *facts*, that his modes of cultivating oſiers are not the worſt that ever were adopted. If they meet with the approbation of the Society of Arts, it will afford no ſmall gratification to

SALICTICUS.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIR,

I ſhall uſe my utmoſt endeavours to procure ſatisfactory anſwers to the queries which you are pleaſed to furniſh me concerning the huſbandry of China and other oriental countries; but as I am at preſent buſy in preparing for my voyage, I can only ſend you the following ſketch of the Chineſe plough, which may be inſerted in your Magazine.

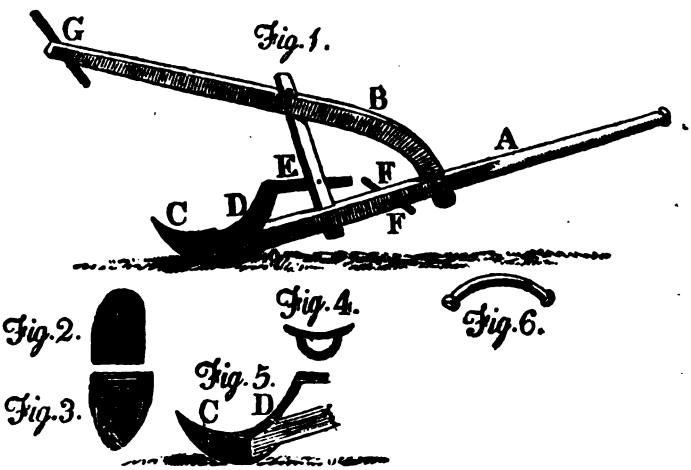


Fig. 1. A The handle or ſtilt.
B The beam.
C The ſock, which performs alſo the office of the coulter.
D The mould-board; an iron piece, in ſhape as at fig. 2.
E A ſhaft which ſupports the mould-board. This might be made as in the fig. to ſet at any angle, which I think would be an improvement.
F F Two handles.
G, A bar through the head, to which the traces are faſtened like a ſwingle-tree.

Fig. 3. View of the under part of the ſock. A, The ſole; a ſheath into which the handle fixes.

Fig. 4. The end view of the ſock.

Fig. 5. A ſide view of the ſock and mould-board.

Fig. 6. A yoke, to the ends of which the traces are faſtened. It is merely laid on the neck of the bullock. They have a hump on their ſhoulder, againſt which it reſts. For the buffalo, a kind of collar is uſed.

You will excuſe me for adding, that I lately ſent the above ſketch and deſcription to Lord Somervelle, together with ſome obſervations on the uſe of oxen for draught. Below, you have a copy of my letter to his Lordſhip, which you are at liberty to uſe or not as you think proper. And I am your, &c.

Blackheath, Dec. 31. 1804. K. k.

Copy Letter to Lord Somerville.

'My Lord,

'I take the liberty of ſending you a ſketch of the Chineſe plough, as I think the adoption of it in this country, on light ſoils at leaſt, would be a very great improvement. It does not a little ſurpriſe a perſon accuſtomed to our comparatively large, heavy looking implement, to ſee the heavieſt clay ſoils ploughed with a deep furrow by this ſlight inſtrument, drawn by one buffalo. I think there muſt be a great ſuperiority in the principle on which it is conſtructed. One evident advantage is, that there cannot be one fifth of the friction that there is in one of our ploughs. Another is the being able to return in the ſame furrow. Both ſides being alike, the handle, which is held over to the right hand in going up, being turned to the left in returning, lays the furrow ſlice the ſame way.

'The expence of ſuch a plough muſt be very ſmall, and it is ſo light that a man can eaſily carry it on his ſhoulder. The ploughman manages it with great eaſe, generally with one hand. On light ſoils, one bullock is uſed (they are about the ſize of a ſmall Highland cow). On the clay ſoils, which about Canton are like our carſes, and which they always plough very wet, they uſe a buffalo, being ſtronger, and fond of wet and mud. I need not enumerate the many advantages to be gained by the uſe of it. But I am afraid, from its apparent ſlightneſs, it may not have a fair trial. Many of our farmers would no doubt view it with great contempt, thinking it only fit to plough up a flower plat. But I aſſure you, a Chineſe ploughman would laugh as heartily at Small's plough with two horſes, as a Lothian farmer would at the clumſy machine with ſix horſes uſed in this neighbourhood. Should you think it worth a trial, I ſhall moſt willingly wait on any tradeſman in town to give every information in my power. For, being no draftſman, the ſketch I have ſent may require explanation. This is the only kind of plough I have ſeen in China; but there is another form, on the ſame principle, in a book of plates, with explanations of the method of cultivating rice (the greateſt object in Chineſe huſbandry) and the management of the ſilk-worm, publiſhed by order of the Emperor, a copy of which is now in my poſſeſſion.'

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Right of the Outgoing Tenant to the Dung made in the laſt Year of his Leaſe.

SIR,

SOME time ago, I ſtated in your Magazine (vol. III. p. 189. May 1802) ſome remarks on farm dung and ſtraw, particularly as to the manner they fell to be diſpoſed of at the end of a leaſe, by the principles of the law of Scotland, and the deciſions of the courts there.

Within theſe few weeks, a queſtion on that ſubject from Eaſt Lothian, between George Thomſon tenant in Hermandſtone-Mill, and Lord Sinclair, came, by bill of advocation of the judgment of the Sheriff of Haddingtonſhire, before Lord Meadowbank, Ordinary in the Court of Seſſion. His Lordſhip pronounced an interlocutory ſentence in that proceſs, which applies to the peculiar circumſtances of it; but he ſtated, in his notes, that the Court of Seſſion had, in the caſe of the Earl of Wemyſs againſt Wright, a deciſion which is mentioned in my former letter, reſolved, that in that and all caſes which might come before them relative to farm dung, they would adhere to the deciſion of 27th January 1767, Finnie againſt Trotter, alſo there mentioned, notwithſtanding the alteration in the practice of laying on dung ſince that deciſion; * by which the law of Scotland now ſtands thus with regard to the farm dung and ſtraw of an outgoing tenant.

The outgoing farmer has a right to full value for the dung only which is made after the term of Whitſunday that occurs after ſowing his laſt crops, that is, the dung made after the laſt Whitſunday of his leaſe, and no more.

The

* For correctneſs ſake, we preſent a copy of this deciſion regarding farm dung in the words of the Dictionary of Deciſions of the Court of Seſſion. 'A tenant removing from his farm at Michaelmas, left a quantity of dung on the land, collected from November of the year preceding; for the value of which he brought an action againſt the maſter and the incoming tenant. Urged in defence, That he ought to have laid that dung on his bear land; and that the outgoing tenant is bound to labour the land of his farm in the ſame manner the laſt year as any other. The Lords found the tenant only entitled to the value of the dung made after the bear-ſeed time of that year: January 27th 1767, Finnie *contra* Trotter of Mortonhall.'

The ſtraw of his laſt crop the farmer may diſpoſe of at pleaſure, unleſs otherwiſe bound by ſpecial bargain, as mentioned in my former letter. A. S.

April 1805.

NOTE BY THE CONDUCTOR.

It exceeds our abilities to comprehend either what is the law of Scotland *ad interim*, with reſpect to the outgoing tenant's right in the dung of the laſt crop but one, or the principles which guided the Superior Court when they fixed the law in the way deſcribed by our correſpondent. One obſervation, however, ſtrikes us, and we make it with ſubmiſſion, namely, that every attempt to reſtrict or leſſen the outgoing tenant's right in the dung lying on the premiſes at his departure, muſt eventually prove injurious to the proſperity of huſbandry. Laying juſtice aſide, and conſidering the buſineſs merely as a queſtion of expediency, the utility of giving value for the dung that remains may eaſily be demonſtrated. For inſtance, the quantity may be leſſened at leaſt one third, by cutting the preceding crop in a ſlovenly manner. It may be curtailed, and alſo much injured, by improvident and careleſs management; or it may be carried out and laid upon the ground when in an unripe ſtate, and little benefit gained from the application. All theſe things may be done by the old tenant, becauſe there is neither ſtatute nor common law to ſtop him, and they are conformable to the old ſyſtem. The modern cuſtom of paying him for the dung left, produced beneficial conſequences on all ſides. It inſured good management from the outgoing tenant, becauſe his intereſt was therewith connected. It proved beneficial to the incoming tenant, by furniſhing him with dung for manuring ſummer fallow in the firſt year of his poſſeſſion, and, in ſhort, cauſed the buſineſs of a farm to go on ſomething in the like regular manner as if a change of tenants had not taken place. We forbear from ſaying more. N.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIR,

IF you or any of your readers would give a full illuſtration of the following paſſage quoted from the late Earl of Haddington's Treatiſe on Foreſt Trees, it would much oblige your humble ſervant, TINTORIANA.

'One thing more. If an oak, aſh, or elm is crooked, ſlit the ſtem quite through the bark, and it will grow ſtraight.' Chap. II. p. 30. edit. 1756.

POST-

BEING, with permiſſion of John Burnet Eſq., his Majeſty's Sheriff-Depute of the county of Haddington, furniſhed with the ſeveral accounts of grain deponed to before him in the proceſs for aſcertaining the fiars of that county for crop and year 1804, we, with much ſatisfaction, preſent the following abſtract of them to our readers, truſting that the ſame will be received as a proof of our deſire to convey information upon every agricultural ſubject. Upon this occaſion, we feel it our duty to expreſs the high ſenſe entertained by us of the polite attention ſhewn by Mr Burnet, and Mr Fairbairn his ſubſtitute, in ſo readily complying with our requeſt.

Quantity of Grain deponed to before the Sheriff of Haddington, March 1. 1805, *and Prices at which it was bought and ſold, being all of Crop* 1804, *and received or delivered within the Bounds of the County.*

WHEAT.

20	Bolls at	-	L.	2	12	0	28	Bolls at	- -	2	0	6
10	Bolls at	-	-	2	11	0	1015	Bolls at	- -	2	0	0
139	Bolls at	-	-	2	10	0	77	Bolls at	- -	1	19	6
191	Bolls at	-	-	2	9	0	114	Bolls at	- -	1	19	0
66	Bolls at	-	-	2	8	6	19	Bolls at	- -	1	18	6
747	Bolls at	-	-	2	8	0	903	Bolls at	- -	1	18	0
26	Bolls at	-	-	2	7	9	152	Bolls at	- -	1	17	6
283	Bolls at	-	-	2	7	6	321	Bolls at	- -	1	17	0
1057	Bolls at	-	-	2	7	0	68	Bolls at	- -	1	16	6
180	Bolls at	-	-	2	6	6	209	Bolls at	- -	1	16	0
1715	Bolls at	-	-	2	6	0	80	Bolls at	- -	1	15	6
35	Bolls at	-	-	2	5	10	224	Bolls at	- -	1	15	0
357	Bolls at	-	-	2	5	6	21	Bolls at	- -	1	14	6
36	Bolls at	-	-	2	5	3	486	Bolls at	- -	1	14	0
2797	Bolls at	-	-	2	5	0	155	Bolls at	- -	1	13	6
165	Bolls at	-	-	2	4	6	204	Bolls at	- -	1	13	0
960	Bolls at	-	-	2	4	0	42	Bolls at	- -	1	12	6
76	Bolls at	-	-	2	3	6	132	Bolls at	- -	1	12	0
943	Bolls at	-	-	2	3	0	93	Bolls at	- -	1	11	6
73	Bolls at	-	-	2	2	6	141	Bolls at	- -	1	11	0
1887	Bolls at	-	-	2	2	0	20	Bolls at	- -	1	10	6
120	Bolls at	-	-	2	1	6	533	Bolls at	- -	1	10	0
376	Bolls at	-	-	2	1	0	5	Bolls at	- -	1	9	6
30	Bolls at	-	-	2	0	8	335	Bolls at	- -	1	9	0

257	Bolls at	-	-	1	8	6	117	Bolls at	-	-	1	5	0
195	Bolls at	-	-	1	8	0	16	Bolls at	-	-	1	4	0
38	Bolls at	-	-	1	7	6	11	Bolls at	-	-	1	3	0
78	Bolls at	-	-	1	7	0	5	Bolls at	-	-	1	2	6
38	Bolls at	-	-	1	6	6	18	Bolls at	-	-	1	2	0
55	Bolls at	-	-	1	6	0	8	Bolls at	-	-	1	1	0
5	Bolls at	-	-	1	5	6	3	Bolls at	-	-	1	0	0

Abſtract of Wheat—Crop 1804.

Bolls.		*Value.*
18510	- -	L. 38254 15 2

General medium	-	2 1 4
Firſt Fiars	-	L. 2 4 $11\frac{10}{11}$
Add 2½ per cent.	-	0 1 $1\frac{6}{11}$
		L. 2 6 $1\frac{4}{11}$
Second Fiars	-	L. 2 1 4
Add 2½ per cent.	-	0 1 $0\frac{4}{11}$
		L. 2 2 $4\frac{4}{11}$
Third Fiars	-	L. 1 14 $9\frac{4}{11}$
Add 2½ per cent.	-	0 0 $10\frac{5}{11}$
		L. 1 15 $7\frac{9}{11}$

BARLEY.

214	Bolls at	-	L.	1	15	0	238	Bolls at	-	-	1	9	0
599	Bolls at	-	-	1	14	0	98	Bolls at	-	-	1	8	6
189	Bolls at	-	-	1	13	6	1101	Bolls at	-	-	1	8	0
907	Bolls at	-	-	1	13	0	94	Bolls at	-	-	1	7	6
46	Bolls at	-	-	1	12	6	200	Bolls at	-	-	1	7	0
1400	Bolls at	-	-	1	12	0	7	Bolls at	-	-	1	6	6
376	Bolls at	-	-	1	11	6	80	Bolls at	-	-	1	6	0
694	Bolls at	-	-	1	11	0	4	Bolls at	-	-	1	5	0
153	Bolls at	-	-	1	10	6	137	Bolls at	-	-	1	4	0
1494	Bolls at	-	-	1	10	0	7	Bolls at	-	-	1	3	0
45	Bolls at	-	-	1	9	6	16	Bolls at	-	-	1	2	0

Abſtract of Barley—Crop 1804.

Bolls.		*Value.*
8079	- -	L. 12463 0 0

OATS.

95	Bolls at	-	L.	1	4	0	879	Bolls at	-	L.	0 18 6
88	Bolls at	-	-	1	3	0	5	Bolls at	-	-	0 18 4
402	Bolls at	-	-	1	2	0	64	Bolls at	-	-	0 18 3
321	Bolls at	-	-	1	1	6	2317	Bolls at	-	-	0 18 0
10	Bolls at	-	-	1	1	3	24	Bolls at	-	-	0 17 9
690	Bolls at	-	-	1	1	0	488	Bolls at	-	-	0 17 6
13	Bolls at	-	-	1	0	9	62	Bolls at	-	-	0 17 3
517	Bolls at	-	-	1	0	6	8	Bolls at	-	-	0 17 1½
19	Bolls at	-	-	1	0	3	694	Bolls at	-	-	0 17 0
1517	Bolls at	-	-	1	0	0	25	Bolls at	-	-	0 16 9
10	Bolls at	-	-	0	19	9	243	Bolls at	-	-	0 16 6
479	Bolls at	-	-	0	19	6	35	Bolls at	-	-	0 16 3
44	Bolls at	-	-	0	19	3	127	Bolls at	-	-	0 16 0
1359	Bolls at	-	-	0	19	0	42	Bolls at	-	-	0 15 6
114	Bolls at	-	-	0	18	9	5	Bolls at	-	-	0 14 0

Abſtract of Oats—Crop 1804.

		Value.
11696 Bolls	- -	L. 11231 16 2

PEAS.

100	Bolls at	-	L.	1	1	0	337	Bolls at	-	L.	0 17 0
5	Bolls at	-	-	1	0	6	131	Bolls at	-	-	0 16 6
42	Bolls at	-	-	1	0	0	8	Bolls at	-	-	0 16 3
88	Bolls at	-	-	0	19	0	212	Bolls at	-	-	0 16 0
13	Bolls at	-	-	0	18	6	19	Bolls at	-	-	0 15 6
409	Bolls at	-	-	0	18	0	39	Bolls at	-	-	0 15 0
51	Bolls at	-	-	0	17	6					

Abſtract of Peas—Crop 1804.

		Value.
1454 Bolls	- -	L. 1275 1 6

N. B.—The prices of peas and beans mixed, and clean beans, which form the chief articles of *black crop*, raiſed within the county, are not received as evidence by the Sheriff.

BRANCH

BRANCH II.

Review of Agricultural Publications.

A Short Account of the Cauſe of the Diſeaſe in Corn called by Farmers the Blight, the Mildew, and the Ruſt. By Sir Joſeph Banks, Bart. London, 1805.

Wheat is ſubject to more diſeaſes than other grains, and in ſome ſeaſons, eſpecially in wet ones, heavier loſſes are ſuſtained from thoſe diſeaſes than are felt in the culture of any other culmiferous crop with which we are acquainted. Wheat may ſuffer from the attack of inſects at the root; from blight, which primarily affects the leaf or ſtraw, and ultimately deprives the grain of ſufficient nouriſhment; from mildew on the ear, which operates thereon with the force of an apoplectic ſtroke; and from gum of different ſhades, which lodges on the chaff or cups in which the grain is depoſited. Theoriſts often neglect theſe diſtinctions, or confound the different diſorders to which this valuable grain is expoſed; but the practical farmer, who ſedulouſly examines his crop in every ſtage of its growth, will not readily fall into ſuch errors.

The loſs ſuſtained in England on the laſt crop was ſo great, as to occaſion ſome inveſtigation concerning the cauſes from which it originated; and, amongſt others, that reſpectable naturaliſt, Sir Joſeph Banks, Baronet, attempted to aſcertain the cauſes, and to find out ſuitable remedies. Though highly diſpoſed to reſpect the motives which influenced him to lay the reſult of his inquiries before the public, we are afraid that agriculturiſts will receive little benefit therefrom: nay more, we are ſeriouſly apprehenſive, that his opinions, if acted upon, would, in more reſpects than one, be attended with the moſt ruinous and deſtructive conſequences.

Sir Joſeph, without inquiry, takes it for granted, that blight, mildew, and ruſt, are one and the ſame diſorder, though the moſt of agriculturiſts have hitherto reckoned them ſeparate diſeaſes, brought on at different periods, and occaſioned by different cauſes. It may be laid down as a primary principle, that the proximate cauſe of every diſeaſe which attacks the ſtalk and ear of wheat plants may be found in the ſtate of the weather at the time, conjoined with the circumſtances of ſoil, ſituation, and ſeed that has been uſed. It is difficult to claſſify theſe diſeaſes,

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or deſcribe them in a diſtinct manner; becauſe the ſentiments, or rather the language of agriculturiſts on this ſubject is arbitrary and indiſtinct. Notwithſtanding that they are, by the great body of farmers, attributed to atmoſpherical influence ſolely, yet much confuſion ariſes in their nomenclature; for many people, like Sir Joſeph Banks, uſe the terms of *blight*, *mildew*, and *ruſt*, as ſynonymous, though, to us, they appear as diſtinct diſeaſes. Blight, according to our ideas, originates from moiſt or foggy weather, and from hoar-froſt, the effects of which, when expelled by a hot ſun, are firſt diſcernible on the ſtraw, and afterwards on the ear, in a greater or leſſer degree, according to local circumſtances. Let a field be examined in a day or two after ſuch weather, and a careful obſerver will ſoon be ſatisfied, that the fibres and leaves of the plants are contracted and enfeebled, in conſequence of what may be called a ſtoppage of perſpiration. This diſorder may take place either earlier or later, but is moſt fatal when it appears at the time the grain is forming in the ear. It may appear at an earlier ſtage; and though the productive powers of the plant will thereby be leſſened, yet, if circumſtances are afterwards favourable, the quality of the grain produced may not be much impaired; or it may appear after the grain is fully formed; and very little damage, except to the ſtraw, ſhall then be ſuſtained.

Mildew, again, ſtrictly ſpeaking, may be ranked as a diſeaſe which affects the ear, and is brought on by cauſes ſomewhat ſimilar to thoſe which occaſion blight, though at a more advanced period of the ſeaſon. If this diſorder comes on immediately after the firſt appearance of the ear, the ſtraw will alſo be affected; but if the grain is nearly or fully formed, then injury on the ſtraw is not much diſcernible. We have ſeen a crop which carried wheat that was mildewed, where the ſtraw was perfectly freſh, though, indeed, this rarely happens. A ſevere mildew, however, effectually prevents both corn and ſtraw from making any further progreſs, the whole plant apparently every day going backward, till exiſtence in a manner ceaſes altogether. Something of akin to mildew is the gum or red oaker, which, in all warm, moiſt ſeaſons, attaches itſelf to the ear, and often occaſions conſiderable damage. All theſe different diſorders are generally accompanied by inſects; which animalcula, by many people who take effect for cauſe, are conſidered, though without the leaſt foundation, as the authors of the miſchief that follows. Their appearance, however, may juſtly be attributed to the diſeaſed ſtate of the plant; for wherever putrefaction takes place, either in animal or vegetable ſubſtances, the preſence of theſe inſects will never be wanting.

Another diſorder which affects wheat, and, by ſeveral people, denominated

denominated the real ruſt, is brought on by exceſſive heats, which occaſion the plants to ſuffer from a privation of nouriſhment, and become ſickly and feeble. In this atrophical ſtate, a kind of duſt gathers on the ſtalk and leaves, which increaſes with the diſeaſe, till the plant is in a great meaſure worn out and exhauſted. The only remedy in this caſe, and it is one that cannot eaſily be adminiſtered by the hand of man, is a plentiful ſupply of moiſture, by which, if received in time, namely, before conſumption is too far advanced, the crop is benefited in a degree proportional with the extent of nouriſhment received, and the ſtage at which the diſeaſe has arrived. We have reaſon to believe, that ruſt is ſeldomer diſcerned in Scotland than in England, becauſe our ſummers are neither ſo warm nor ſo early as thoſe of our ſouthern neighbours. Neither is blight very prevalent in this northern climate. Mildew, in fact, is the diſorder which Scotiſh agriculturiſts have moſt to dread, and the alone preventive is the uſe of thin-chaffed wheats; theſe, even in the worſt ſeaſons, being only partially injured.

Having offered theſe preliminary remarks, we ſhall examine what Sir Joſeph Banks communicates on this important ſubject.

Sir Joſeph ſets out by obſerving, that 'botaniſts have long known that blight in corn is occaſioned by the growth of a minute paraſitic fungus or muſhroom on the leaves, ſtems, and glumes of the living plant,' which fungus or muſhroom, he thinks, (p. 11.) may be 'brought into the field in a few ſtalks of infected ſtraw, uncorrupted, among the maſs of dung laid on the ground at the time of ſowing.' Whether botaniſts have long entertained ſuch notions, we do not pretend to determine, though we are tolerably certain, that few practical agriculturiſts have thought on the ſubject in that way. Indeed, the firſt link of Sir Joſeph's theory is inſtantly broke through by himſelf, for he acknowleges, 'that the clover leas, on which no dung was uſed, were as much infected laſt autumn as the manured crops.' The ſource whence the fungi originated being thus cloſed up, we muſt regard their exiſtence, in the firſt inſtance, as a queſtionable circumſtance, and endeavour to find out other cauſes for the miſchief ſaid to be committed by them on the wheat crop of laſt ſeaſon.

Though there is not the ſmalleſt reaſon to believe, that paraſitical animalculæ were the agents of the miſchief, the whole of which may be imputed to atmoſpherical influence, yet it is not quite clear, whether exceſſive drought or exceſſive rains occaſioned it. Perhaps both had their influence. The exceſſive drought firſt debilitated the plant, and, being immediately ſucceeded by exceſſive rains, which came on when the crop was in a critical

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ſtage, a ſevere loſs, ſeverer than what it would have been, had circumſtances been different, neceſſarily enſued. This concluſion will without difficulty be admitted by every farmer much concerned in the growing of wheat, who has attentively remarked on his crops in the various ſtages of their growth, and compared the extent of produce in different years, with the weather when the filling and ripening proceſſes were going forward.

Whether blight and mildew is conſidered ſeparately, or viewed as one and the ſame diſorder, appearing at different periods of the plant's growth, we are clear that both may with truth be reckoned to proceed from an unhealthy atmoſphere, when the crop is in certain ſtages of its progreſs to maturity. Every farmer is ſatisfied, that not only the extent, but the very appearance of blight and mildew are entirely governed by the ſeaſons; and that, with reſpect to wheat, the kind ſown, namely, whether thin or thick-chaffed, has a very conſiderable effect in leſſening or increaſing the effects of theſe baneful diſorders, and that even ſoil, culture, and ſituation, have each their reſpective influence. It rarely occurs that either blight or mildew are felt in dry, warm ſeaſons, except in cloſe confined fields, where the evening dews ſtagnate, and remain till removed by the meridian ſun. Hence the wheat crops, in ſuch ſituations, ſeldom or never eſcape a partial or general injury. On the other hand, in every moiſt ſeaſon, whether cold or warm, blight, mildew, and gum, on the ear, are experienced in a greater or leſſer degree. In ſuch ſeaſons, thin-chaffed wheats are much leſs injured than thoſe that are thick-chaffed, which circumſtance is in direct oppoſition to the doctrine of blight, mildew and ruſt being brought on by paraſitical plants or fungi. Among many others in our power to ſtate, a convincing inſtance occurred in that fatal year 1799, when few fields eſcaped mildew of the moſt aggravated kind. On one field carrying both kinds, ſowed in one day, and harveſted in like manner, we had not only one third more produce from the part which carried thin-chaffed grain, but actually ſold it two ſhillings and ſixpence per buſhel higher in the public market, than the other would fetch. Soil, culture, and ſituation, have, in an inferior degree, an influence in the growth and progreſs of diſeaſes. Some ſoils are naturally ſo moiſt at bottom, that dampneſs iſſues from them at all times. Superior culture, and exceſſive manuring, are apt to cauſe a crop to be early lodged, in which caſe, one diſeaſe or other is ſure to ſeize upon it; and a ſouthern aſpect, and every confined ſituation, are much more hazardous than thoſe of a northern or weſtern aſpect, and where the air has free egreſs. In a word, when hoar froſt or vapour of any kind is diſpelled by wind, no danger will follow to the crop; but, where a hot ſun is the agent, we have repeatedly noticed the moſt ſerious loſſes.

Now, were Sir Joſeph Banks's hypotheſis correct, namely, that blight, mildew and ruſt are produced by fungi on the plants, we ſhould humbly ſuppoſe that it matters not much what the ſeaſon may be; whether thin or thick-chaffed wheats are ſown; nor what the ſoil and ſituation of wheat fields. If the fungi once get there, all is over, unleſs every hand, that can be procured, is ſet to work in ſelecting and deſtroying the infected plants, before the diſeaſe has taken poſſeſſion of the whole field, and contaminated the neighbourhood. This to us appears to be the only remedy ſuggeſted by the worthy baronet; and whether it is practicable, or rather whether the cure would not be worſe than the diſeaſe, we muſt leave others to determine. We have explained his hypotheſis in ſuch a way as farmers may underſtand it; and as for philoſophers, we are not ſo preſumptuouſly arrogant, as to ſuppoſe, for a moment, that any thing from humble farming reviewers can have the ſmalleſt influence in regulating their ſentiments.

Here we cannot avoid obſerving, that if Sir Joſeph was ſatisfied of the rectitude of Fontana's theory, the principle which induced him at this time to claim public notice ought to have brought him forward much earlier. He appears to have been equally illuminated in 1767, when Fontana publiſhed his obſervations, as he is now in 1805, when he comes forward to retail this ſtale account, without being furniſhed with an additional remark. We are free to ſay, that, if the author were not a man high in rank, and at the head of the Royal Society, his publication would have been diſregarded by every farmer in Great Britain. What is it that he means to teach them? Or what inſtruction does he convey for their benefit? If theſe queſtions were put to us, candour would influence us to acknowledge that a ſatisfactory reply exceeded our abilities.

So far as we have gone, it does not appear that farmers will receive either good or evil from Sir Joſeph's hypotheſis, unleſs they ſhould credit it ſo far as to hunt their fields for the fungi, when no doubt much of the young crop might be trampled down, and otherwiſe deſtroyed. We are more afraid that farmers, in thoſe hard times, will be diſpoſed to follow his advice in another point, and ſow infected or imperfect ſeed, though ſurely ſuch an advice is inconſiſtent with every eſtabliſhed opinion, whether ſanctioned by experience or analogy.

Sir Joſeph ſays, p. 12, 'It cannot be improper in this place to remark, that although the ſeeds of wheat are rendered, by the exhauſting power of the fungus, ſo lean and ſhrivelled, that ſcarce any flour, fit for the manufacture of bread, can be obtained by grinding them, theſe very ſeeds will, except perhaps in the

very worſt caſes, anſwer the purpoſe of ſeed-corn, as well ıe faireſt and plumpeſt ſample that can be obtained, and in : reſpects better; for, as a buſhel of much blighted corn contain one third at leaſt more grains in number than a bu- of plump corn, three buſhels of ſuch corn will go as far in ng land, as four buſhels of large grain.'

hat light or defective wheat will vegetate and produce a t, we do not feel diſpoſed to contradict; but that ſuch will tate as briſkly, or put out a ſtem of equal ſtrength, and ca- e of withſtanding the ſevere winter blaſts, as thoſe produced ı ſound ſeed, we muſt be excuſed for not believing. Let it be conſidered that a plant of young wheat, unleſs when ve- arly ſown, lives three or four months, in a great meaſure, ı the nouriſhment which it derives from the parent ſeed; that ſuch nouriſhment can, in no view of the ſubject, be ſo t when the parent is lean and emaciated, as when ſound, thy, and vigorous. Let it alſo be remembered, that a plant uced from the beſt and weightieſt ſeed, muſt, in every caſe, :r a parity of other circumſtances, have a ſtronger conſti- n at the outſet, which neceſſarily qualifies it to puſh on greater energy when the ſeaſon of growth arrives. With- reaſoning, however, on theſe matters, becauſe, *a priori*, any ş of that kind is unneceſſary, it may be ſtated, that we have fields which were partly ſown with ſound, partly with mil- :d ſeed, and the difference was diſcernible at one glance ugh the whole winter months. Indeed, the economy of na- would be overturned, had any other reſult followed. A der of cattle or ſheep would not act more fooliſhly, who ed that a deformed diminutive bull or ram would produce good ſtock, than the corn farmer does who uſes unſound or oper ſeed.

'e have in ſubſtance admitted, that mildewed ſeed will ve- e, though, in one inſtance, we remember of a field ſown ſuch ſeed, where three fourths of the grain at leaſt lay al- ther dormant; but we contend, even under the above ad- on, that ſuch ſeed ought not to be truſted, ſeeing it furniſh- ants unable to withſtand the ſevere blaſts of winter and g. It is well known, that, in ſome ſeaſons, even the ſtrong- ooted wheat ſuffers ſeverely; and there is no doubt, but that veak and feeble plants always periſh firſt. But what may pected, when the whole plants are weak and debilitated, ceſſarily muſt be the caſe with thoſe produced from light , till the coronal roots are formed, and able to ſearch for ? When that period arrives, perhaps, the battle is in a great ıre won; but how many thouſands may be ſlain before that

ſtage is reached. That there is a danger from weak ſeed, and not a little one, we preſume will not be diſputed; and that the farmer who expoſes himſelf to ſuch a danger does not act wiſely, needs not any demonſtration.

But another reaſon operates with us againſt the uſe of mildewed wheat, which at leaſt deſerves conſideration. Is there not ſome riſk that the diſeaſe may go from the parent to the crop, and that the produce may thereby be leſſened? We do not go ſo far as to ſay, that this diſeaſe, like ſmut, begets its like, though there is a degree of riſk in the uſe of mildewed ſeed, which no prudent farmer would chooſe to hazard who could avoid it. On this point, we have the reſpectable ſupport of Sir John Sinclair, Bart., who, in an addreſs to the members of the Board of Agriculture, September 1795, ſays, 'Every exertion ought to be made to ſecure an abundant ſupply of wheat; and, for the purpoſe of effecting ſo deſirable an object, it is eſſentially neceſſary that none but the beſt ſeed ſhould be made uſe of. In ſome parts of the kingdom, particularly in Yorkſhire, the mildew has been much complained of. *Any ſeed infected with that diſorder ought to be avoided as much as poſſible, and untainted ſeed, at any expence, ought to be procured.*' Sir John, in this advice, diſplays a correctneſs of opinion, which we truſt will never be loſt ſight of by the farmers of Great Britain.

As already ſaid, we decidedly think that blight, mildew and ruſt are occaſioned by atmoſpherical influence. A field of earlier or later growth may eſcape, when conterminous ones ſuffer; becauſe the real mildew is moſt deſtructive when the grain is under the filling proceſs. Wheat ſown in ſpring is as ſuſceptible of injury as that ſown in autumn and winter. In crop 1781, when the winter wheat was plump and productive, the ſpring ſown fields were rendered almoſt uſeleſs by eight days of cloſe fogs, when the grain was in the milky ſtate; and that the Lincolnſhire ſpring ſown wheat eſcaped this year, when the winter grain ſuffered ſo much, can alone be attributed to the fine weather which ſet in at a critical period. Had the wetneſs continued eight or ten days longer, there is every reaſon to believe that the like evil would have befallen both.

How Sir Joſeph, for a moment, could make it a queſtion, whether the ſtraw of a crop that has been blighted is equally nutritious with that of a ſound crop, is wonderful indeed. He might, with the like propriety, have made it a matter of inquiry, whether the fleſh of a ſcabbed ſheep contains as much juice and nouriſhment as that of one fat, healthy, and vigorous. The infected ſtraw of 1781, when the ſpring wheat of Scotland was ſeverely mildewed, contained little or no nutritive ſubſtance. It

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was of a black and grey colour, and little better thatn a *caput mortuum*. The ſtraw of 1799 is all within our remembrance. It was light; a convincing proof of poverty. In fact, every diſeaſe which primarily attacks the ſtraw, reduces its value in as great a degree as it does that of the grain thereon produced.

The preface, to us, is perfectly unintelligible. Sir Joſeph hopes, that either the not diſtributing the pamphlet before the end of wheat-ſeed time, or the engraver not having fulfilled his engagement in ſending him the plates ſoon enough, will be conſidered as a ſufficient apology for want of actual obſervations on the origin and progreſs of the diſeaſe. Pray, Sir Joſeph, can ſuch an apology be received as a ſufficient excuſe for preſenting an imperfect work. The abſurdity of ſuch a ſuppoſition is too ſtriking to eſcape the moſt ſuperficial obſerver; for the longer that the publication was delayed, the more time was given for making and collecting obſervations. Few authors would have uſed ſuch an apology; and had not the name of Sir Joſeph Banks been affixed to it, we would in charity have believed, that ſome good old woman had, on this occaſion, taken up the pen as a relief from the fatigues of the diſtaff.

Upon the whole, we muſt expreſs our ſurpriſe, that a gentleman of Sir Joſeph Banks's good ſenſe ſhould have committed himſelf ſo decidedly on a buſineſs with which, to ſay no more, he ſeems imperfectly acquainted. His inquiries may amuſe a few ſpeculative people, but cannot be of any benefit to the practical agriculturiſt. So far from this being the caſe, we are not ſure but that they may produce much miſchief. Had he recommended the ſelection of ſuch varieties of wheat as are conſtitutionally diſpoſed to reſiſt the attacks of blight, mildew and ruſt, his publication might have been of ſome advantage; but as he would indirectly lead us to believe that all varieties are equally expoſed to thoſe baneful diſorders, and recommends the uſe of unſound and imperfect grain for ſeed, we muſt regard it in a very different light. The ancients perſonified the demons that blaſted the corn; and Varro, in particular, thus invoked their mercy: 'Robigum ac Floram, quibus propitiis, neque Robigo frumenta atque arbores corrumpit, neque non tempeſtive florent, itaque Publicæ Robigo feriæ, Robigalia, Floræ ludi Floralia, inſtituti.' It is doubtful whether theſe holidays and feſtive ſports were of much ſervice in averting theſe cruel deſtroyers of the hopes of the huſbandman, though perhaps they might be as effectual as any thing ſuggeſted by Sir Joſeph Banks. In fine, were the worthy Baronet's opinions conſidered as correct, a ſentence of condemnation againſt the farmers of Great Britain, from the earlieſt period to which hiſtory reaches, would neceſſarily follow.

N.

The Practical Planter, or a Treatiſe on Foreſt Planting, comprehending the Culture and Management of Planted and Natural Timber, in every ſtage of its growth: alſo on the Culture and Management of Hedge Fences, and the conſtruction of Stone Walls, &c. Second Edition. By Walter Nicol, Author of the Forcing Fruit and Kitchen Gardener, &c. London, Printed by Whittingham for J. Scatchard and H. D. Symonds.

'WHOEVER ſhall give himſelf the trouble to look over the contents of this work,' ſays the author, 'will perceive that the ſubject, taken in the general, is far from being unimportant.' We readily ſubſcribe to this ſentiment, and find no difficulty in adding, that whoever takes the trouble to read the work will find his labour compenſated. Many conſiderations ſerve to ſhew, that this is a ſubject of public intereſt, as well as of private utility; indeed, it is the welfare of the public, that we always have in view, in recommending plans of improvement, though we muſt addreſs our arguments to the ſelfiſhneſs of individuals. To obtain timber for our extenſive and growing demands, is an object of great national importance; it is no inconſiderable ſum that we muſt pay yearly, to our neighbours, for this ſingle article. If Bonaparté could ſhut us out from the wood markets of the north, as he endeavours to exclude our goods from the markets of Germany, we ſhould be in no very comfortable predicament. The foreſts of the north may even be unable, in proceſs of time, to ſupply us; every one may perceive that the quality of the wood which we import, is far inferior to what we got thirty or forty years ago, a proof, we ſhould ſuppoſe, that it is cut much younger. Add to this, that, if our coal mines ſhould be exhauſted, and they are certainly not inexhauſtible, we ſhould need much wood, in addition to our preſent demand, for the purpoſe of fuel. We may not be able, perhaps, ever to raiſe wood ſufficient for all our demands; but if we can produce a conſiderable part, we ſhall be ſo much leſs at the mercy of contingencies.

Man is a ſort of impatient being; he no ſooner fixes his deſires on an object, than he would poſſeſs it; he cannot think to wait on the ſlow proceſs of receiving his golden eggs one by one, but kills his hen to obtain them at once; he is very unwilling to beſtow his labour and expence, and ſit down contentedly in expectation of his reward at a diſtant period; he is ſtill leſs willing to labour and lay out money for poſterity. It may be owing to this, that ſo many parts of our country are deſtitute of wood which could be planted to ſo great advantage; the proprietors prefer a few ſhillings per acre, in the mean time, to a much greater return which ſhall be received, perhaps, only by their heirs. This, however, is far from being good policy. There

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are many places, undoubtedly, which can bear no corn and not much graſs, where trees might grow to conſiderable advantage: it would certainly be worth while, in ſuch ſituations to do a little, even for the next generation, rather than condemn the earth to perpetual ſterility. But it generally happens that plantations, judiciouſly managed, yield a partial return in a few years, and, where they do not, they frequently render the ground in their neighbourhood as much more valuable as to requite the labour and expence beſtowed on them. We ſhould never wiſh to ſee land applied to this purpoſe which yields an immediate and tolerable return, either in tillage or paſture; but, there is not a little, incapable of either, which, if planted, would benefit the country, and ſufficiently reward the proprietors.

Every friend of his country, and of his ſpecies, muſt obſerve with pleaſure the increaſing ſpirit of inquiry and of improvement. When men are diſpoſed to do nothing at random, but to inveſtigate facts and deduce principles, they may be led aſtray, for a while, by ſpecious theories and falſe reaſonings; but the probability is, that they will, at laſt, get into the right track. Our forefathers were too much inclined to perform the moſt important operations of the field without any fixed principle, or being able to aſſign any reaſon for their conduct, but that if they threw the ſeed into the ground it was likely to grow. Now, we ſee rules laid down for every thing; not a tree is to be planted, but we are taught to inquire what kind of plant we ought to prefer, in what ſituation we ſhould place it, how the operation is moſt profitably to be conducted, from the ſowing of the ſeed to the felling of the timber. In conſequence of this univerſally improving ſpirit, may we not indulge the hope, that, at ſome no very diſtant period, every acre of our iſland ſhall be covered with ſome crop, calculated to promote public and private advantage?

Mr Nicol is a warm advocate for planting, and at the ſame time a judicious inſtructor in the practice. He ſays enough to convince every proprietor that he cannot, in many caſes, employ his land ſo profitably as in planting; and he lays down ſuch rules as may prevent any perſon from planting unprofitably. Mr Nicol divides his book into ten chapters, in which he treats of the various ſituations whereon foreſt timber may be advantageouſly cultivated; of the ſoils adapted to the different kinds of trees; of nurſing ſeedlings for extenſive deſigns; of planting, and the management of new plantations; of planting hedgerow and detached trees, pollards, &c.; of thinning and pruning old plantations which have been neglected; of the manner of cutting and thinning natural woods; of ſubdividing large tracts by belts, ſtripes, &c.; of the value of foreſt timber, both in a

private and national point of view; and of the various modes of fencing.

In the firſt chapter, the author conſiders high, bleak, inland ſituations; low, ſheltered, inland ſituations; banks or vicinage of canals or navigable rivers, and maritime ſituations: in diſcuſſing theſe topics he ſhews clearly that there is ſcarcely any ſituation or ſoil, where trees may not be made to grow. Trees, like other plants, have their peculiar ſituations where they will flouriſh; and, ſo various are their conſtitutions, if we meet with a place where it is ſaid plantations would not thrive, we may almoſt conclude, that proper care was not taken to ſuit the kinds of the plants to the ſoil and climate. In ſpeaking of maritime ſituations, the author ſays, p. 26.

'The ſituation under view is reckoned the moſt untoward of any on which timber may be reared; and many have had reaſon ſufficient to ſupport them in this opinion. The fact is, that nine times out of ten, want of ſucceſs has been in conſequence of planting thin, and with too large plants, eſpecially in ſituations much expoſed.' In a note the author adds, 'I am aware, while I advance this aſſertion, that I have to combat the general idea, that ſea air is obnoxious to vegetation, and particularly to the growth of trees. But, that ſea air is more obnoxious to trees in general, than to grain, or the herbage which may grow under them, I deny. The fact is, it is the force of overprevailing winds, which are increaſed and chilled by paſſing over a vaſt expanſe of water, which contributes to ſtint the tree more than the grain or herbage, on which they cannot act ſo forcibly, nor injure ſo much by friction or reverberation.'

We are inclined to think that there is juſtneſs in this remark; yet it is not improbable that air impregnated with ſalt particles, may be injurious to ſome vegetables, and not to others. Hence corn and graſs may grow, while trees may not; at the ſame time, upon the principle of various plants requiring various food, ſome trees may live and flouriſh, though others may not. What helps to ſupport the author's ſentiment, in general, is, that foreſts, large and thriving, have been found, in many parts of the world, upon the margin of the ſea. We rather doubt whether 'many arguments (ſolid ones at leaſt) might be adduced to prove, that, until there be too much timber planted in this iſland, the value of all lands lying within a mile of the ſea, may be enhanced more by the culture of timber than by that of any other crop.' Land, which brings its owner from four to ſix pounds per acre at preſent, would need to bring a very handſome return, when the wood comes to market, to requite him for rent which he has wanted during that time, for expence of planting, for intereſt upon all this money, and to cover the riſk which, in ſome degree, muſt attend that kind of crop.

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In Chap. II. On the ſoils adapted to the different kinds of foreſt trees, the author begins with ſome very good general obſervations.

'Before conſidering the ſoil moſt properly adapted to the trees above enumerated,' he ſays, p. 32, 'it may be proper to premiſe,

1ſt, 'That although no tree will flouriſh in a ſuperlative degree, except in its own ſoil, yet are they found in very conſiderable perfection in thoſe of apparently different compoſition and texture.

2d, 'That there would ſeem to be an incomprehenſible good or ill in ſome ſoils, and which is either food or poiſon, ultimately, to plants depoſited in them. *

3d, 'That prudence ſhould therefore direct putting different plants into the ſame ſoil, to the intent that each may ſearch out that good, or diſcover that ill; and afterwards, the removal of the poiſoned, and careful retention of the healthy and well fed plants.

4th, 'As the beſt criterion, in a doubtful caſe, of the quality of the ſoil fitted for foreſt timber, it might be adviſeable to plant many kinds, encouraging thoſe which ſeem to thrive beſt, and which would become the moſt valuable trees, by thinning away the others as they advance. For, a healthy tree, although of leſs intrinſic value as timber, is preferable to that in a languiſhing ſtate, whoſe wood, were it healthy, might be much ſuperior; beſides, in point of gratification to the beholder, there is no compariſon.

5th, 'In favourable ſituations, and although the upper ſoil may be ſcanty, we are not to deſpair of rearing timber of ſome kind in perfection; in as much as the ſubſtratum is frequently found of a kindly nature, and in which the roots find paſture, and take deep hold.

6th, 'The moſt untoward of all ſoils for the produce of timber in high perfection, is an irony till of little depth, lying on a retentive ſubſoil which upholds a poiſonous ochry water, and which ſtagnates on the ſurface, or remains latent in the body of the ſoil, which is the paſture of the roots,—contracting the mouths of the fibres, contaminating the juices, and finally operating to the deſtruction of the tree, by poiſoning it, and haſtening its diſſolution.

'In addition to theſe obſervations, before deſcending to conſideration of the particular ſoils adapted to the different kinds of trees, I ſhall remark, that, excepting peat bogs and other drainable marſhes, which may be converted into culturable fields, and rendered highly productive of grain, by the excellent mode of draining now in practice, the following, in moſt caſes, are the ſoils and their ſubſtrata found in ſituations fit for the produce of timber, and in which ſome of the ligneous tribes will not fail to exuberate.

'Light, ſandy, or gravelly ſoils, on a free porous ſubſoil. Sandy or gravelly loams, on a porous ſubſoil. Sandy, gravelly, or loamy ſoils, on a retentive ſubſoil. Chalky loam, or gravelly

* 'It is well known, that where mines of iron, lead, or copper, lye near the ſurface, no plant will thrive in perfection; as is the caſe in the Lead-hills in Scotland.'

velly chalk, on a porous ſubſoil. Loamy clay, on a porous ſubſoil. Clayey loam, on a porous ſubſoil. Strong, loamy, or clayey ſoils, on a retentive ſubſoil. Thin, heathy, mooriſh ſoils, on a gravelly or other porous ſubſoil. And thin, heathy, mooriſh ſoils, on a clayey or other retentive ſubſoil.'

After theſe general obſervations, the author proceeds to deſcribe particularly, the ſoils and ſituations moſt ſuited to eighteen kinds of trees, of the deciduous claſs, and ſix of the reſinous.

In Chap. III. On nurſing ſeedlings, the author gives very intelligible directions for the choice of a ſpot for the nurſery, and for the management of the plants from the time of their being placed in the nurſery, till they are fit to be planted out. As he does not write for the inſtruction of nurſerymen, he gives no directions for raiſing plants from the ſeed; nor does he think that it will be worth any perſon's while to raiſe his own plants at all, unleſs for very extenſive deſigns.

Mr Nicol is a decided advocate for uſing ſmall plants, if they are healthy, in preference to large ones: in this he is unqueſtionably right. Every one, who has occaſion to remove plants of any kind, will always ſucceed moſt readily when they are young and ſmall. There can ſcarcely, then, be a greater error than to make choice of old and large plants, in expectation of having our wood ſo much the ſooner reared: it is likely to be juſt ſo much the later. Our author ſays, p. 71,

'Perhaps I ſtand ſingle in ſaying, that the larch ſhould never remain more than one ſeaſon in the ſeminary. I am convinced of this, from having made a variety of experiments for aſcertaining the quickeſt and moſt advantageous methods of rearing this uſeful tree.

'Perhaps I alſo ſtand ſingle when I aſſert, that the reſult of theſe experiments has proved, to my entire ſatisfaction, that a healthy ſeedling of one year, alſo nurſed one year, in moderately good ſoil, having ſufficiency of room, and kept properly clean of weeds, will, in any ſoil or ſituation wherein it may afterwards be placed, outgrow another of *any age* within the ſeventh year after tranſplanting.

'I have planted many of this deſcription, and, within that period, have meaſured them fifteen feet in height; while thoſe on the ſame ſpot, planted the ſame day, and which were ſome two, ſome three years nurſed, did not meaſure above twelve feet, nor were ſo ſtraight or beautiful.'

In Chap. IV. On planting, and the management of new plantations, the author is very particular in his directions for preparing the ground. He treats of clearing it, where neceſſary, of furze, broom, bramble, &c.; of draining, of ploughing only, of pitting only, and of ploughing and pitting: the practice which he recommends on each of theſe heads, ſeems to be the reſult of experience. Where the ground is covered with furze or other

brushwood,

bruſhwood, he recommends burning it, after it is cut, and applying it as manure for the young trees. The aſhes ought to be carefully ſpread over the ground, if it is to be ploughed, or, if not ſufficient to be laid over all the field, they ſhould be applied to thoſe places which are moſt wet and cold. If the trees are to be planted by pitting, the aſhes ſhould be mixed with a little of the beſt mould, and a quantity of this compoſt carefully mingled with the earth of each pit.

'Accident,' ſays Mr Nicol, 'which diſcovers many valuable ſecrets, firſt led me to the knowledge of this; and I am ſo fully convinced of its efficacy, that I would ſeriouſly recommend the practice in all caſes where opportunity affords the means.

'Having cut the whins, which were the moſt luxuriant crop of the kind I had ever ſeen, of a field which was planted with timber trees the following ſeaſon, they were gathered into wind rows, and burnt. The aſhes were not ſpread, but negligently ſuffered to remain as they lay, the wind, perhaps, ſhedding a conſiderable quantity of them over the adjacent ſpaces, but leaving the greater part in rows. The ground was not ploughed, but pitted; becauſe the former operation was impracticable, by reaſon of the ſtrength of the whin roots. Nor were thoſe, on account of the expence, ſtubbed up.

'The effect of the aſhes was ſuch, that on the wind rows an aſtoniſhingly luxuriant herbage roſe the following ſeaſon; inſomuch, that the trees were completely covered in ſummer, and borne down by the weight of the herbage in winter, till relieved by the hand. The next ſeaſon the herbage was ſomewhat leſs luxuriant; but even the third ſeaſon it was more ſo on the wind-rows than it was the firſt ſeaſon on the interſtices. Until the third ſeaſon, the effect of the manure on the trees was not perceptible. But from this time, for three or four ſucceſſive years, the difference of growth on the trees of the wind-rows, and intervals, was very obvious, and greatly in favour of the former.'

We have made this extract, not with reference to the author's particular object only, but, to ſhew, in general, the advantage of that minute attention to every particle of manure which we would inculcate in all caſes.

The remaining ſections of this Chapter are, on the proper age and ſize of the plants; on the diſtance at which they ought to be planted according to ſituation, ſoil, &c.; on the mixture of different kinds; on the proper ſeaſon of planting and manner of performing the operation; on ſowing acorns among foreſt trees; on culture of the ground after planting; on pruning, on thinning, and on the treatment of wounds in trees. On all theſe topics the reader will find much uſeful information.

Chapter V. on planting hedge-rows, detached trees, pollards, &c. is divided into three ſections. The firſt contains preliminary conſiderations; the ſecond is on the proper kinds for hedge-rows, &c.;

&c.; and the third is on the manner of planting and future management.

Chapter VI. contains directions for thinning and pruning old plantations which have been neglected, with cautions to be obſerved, in conducting theſe operations, according to local ſituation and other circumſtances.

Chapter VII. furniſhes inſtructions for cutting of natural woods into hags for bark or fuel; for reducing natural oak woods into timber groves; for cutting with the double view of rearing timber and underwood; and for dreſſing of old timbers ſtanding irregular or detached in natural woods. In this chapter the author takes occaſion to offer ſome directions for barking, and preſerving the bark after it is ſeparated from the trees.

Chapter VIII. treats of the direction, poſition and breadth of belts and ſtripes, for ſubdividing large tracts, and of the advantages reſulting from the practice in reſpect of ſhelter and improving the climate. It would ſeem to be rather a more proper arrangement to make this chapter immediately follow chapter fifth.

Chapter IX. is on the value of foreſt timber. The author does not here enter into any particular ſtatement of the profits reſulting from the culture of timber, but merely points out the general advantages which may be expected to attend it.

In the laſt Chapter the author treats of the various modes of fencing, of quick hedge and ditch, of plaſhing and cutting of old hedges, of ſtone walls, and of mud and turf walls. The laſt two of theſe articles do not ſeem *abſolutely* neceſſary in a treatiſe on planting; but the author may be excuſed in devoting a dozen of pages to the building of ſtone and turf walls; they contain, perhaps, the only matter that can be reckoned extraneous in the whole book. We do not, however, deem what the author has ſaid on theſe ſubjects uſeleſs. He likewiſe gives excellent directions for the planting and management of thorn hedges. This is certainly an important ſubject, and perhaps it does not always receive the attention which it deſerves. No fence, in this country, is ſo beautiful as a thriving thorn hedge, and none, of equal height, affords an equal ſhelter. Thorn hedges occupy more ground, it muſt be admitted, than ſtone walls; and, beſides, as they are uſually kept, nouriſh, perhaps, a greater number of weeds to ſhed their ſeeds over the neighbouring fields: yet it is expedient, in many caſes, to rear fences of this kind, and ſurely it is an object of importance to do it in the beſt manner. We could willingly extract ſome of the author's remarks on this ſubject, had we not already extended our extracts and remarks too far. We have endeavoured to give our readers a general idea of the merits of this [illegible] and of the matter contained in it: thoſe who wiſh to be

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more particularly inſtructed, on the ſubject of which it treats, muſt peruſe it for themſelves.

We cannot diſmiſs Mr Nicol, without obſerving that, though a warm advocate for planting, he is not like the moſt of thoſe projecting geniuſes who have got ſome favourite ſyſtem to recommend; they uſually ſee nothing but proſpects of certain advantage themſelves, and take good care to make their readers ſee nothing elſe; they draw a beautiful picture of their favourite object, and what would offend the eye, 'they caſt diſcreetly into ſhades.' Our author, indeed, ſeems to entertain little doubt of plantations being profitable, almoſt in all caſes, where rightly managed; but he admits the poſſibility of riſk and loſs, and he never ſtrengthens his arguments, according to the uſual practice, by particular ſtatements of profit. He very juſtly obſerves, that the actual profits ariſing from planting, muſt vary in every diſtrict of the kingdom, according to demand and local ſituation.

We cannot help making a remark on the ſtyle of this work. By a ſhort, and ſomewhat affected mode of expreſſion, Mr Nicol, occaſionally, renders his meaning a little difficult to be underſtood, and, by attempting to be eloquent, eſpecially when combating the ſentiments of others, or recommending ſome very favourite point, he is apt to provoke a ſmile. When detailing facts, and giving directions for practice, he always expreſſes himſelf clearly, and in a manner perfectly ſuited to the plainneſs of his ſubject: indeed, he is in no danger of erring, if he expreſs his ideas as they naturally riſe in his own clear and ſound underſtanding. Upon the whole, thoſe who either wiſh to plant, or have old plantations to manage, will find it worth their while to poſſeſs this volume. They will find every thing in it that is abſolutely neceſſary to be known on the ſubject, and every thing ſtated in that practical manner which renders inſtruction moſt profitable. It will not render a proprietor a *practical planter*; but it may give him that knowledge on the ſubject, which ſhall enable him to judge when his plantations are rightly managed, and prevent him from being impoſed on by the ignorant or deſigning.

J.

Obſervations on the Review of Mr Hunter's Letter to the Commiſſioners of Supply for Eaſt-Lothian, inſerted in the Farmer's Magazine for Auguſt 1804. pp. 25. Edinburgh, Anderſon, 1805.

Letter to the Author of the Obſervations on the Review of Mr Hunter's Letter, &c. pp. 60. Haddington, Miller & Neil, Edinburgh, Conſtable & Co. London, Longman, Hurſt, Rees, & Orme. 1805.

THE property tax, in ſo far as it affects the occupiers of land in Scotland, has occaſioned much diſcuſſion in ſeveral counties;

but in none has more ariſen than in the county of Haddington, where the Board of Commiſſioners appointed to execute the act, were divided in ſentiment with regard to the nature of the tax, and the manner in which it ought to be aſſeſſed. The points in diſpute may be reſtricted to theſe: 1. The valuation of farms poſſeſſed for more than ſeven years: 2. The deduction of one eighth from rent to the occupiers of tithe-free farms. Several of the commiſſioners were inclined to rate ſuch farms according to their market value, without paying attention to the circumſtances under which they were poſſeſſed; and to refuſe the deduction of one eighth in every caſe. This ſyſtem was afterwards relinquiſhed; and the opinion of thoſe who originally conſtituted the minority ultimately prevailed.

The pamphlets before us, are written in defence of the two parties into which, unhappily, the commiſſioners were divided; and inveſtigate the points of diſpute, with great keenneſs and aſſiduity. The author of the obſervations embraces the opinion of the original majority, and ſeems to think, that every farm poſſeſſed without the ſeven years ſhould have been rated according to its full worth, and conteſts the abatement of one eighth with much energy. His antagoniſt, on the other hand, ſupports the ſyſtem which ultimately prevailed; and maintains that, in every inſtance where valuations were neceſſary, ſuch ought to have been executed according to exiſting circumſtances, otherwiſe injuſtice would be done to the occupier. He likewiſe ſhews, at great length, that the legiſlature meant no diſtinction betwixt the occupiers of land in both countries as to the deduction of one eighth; and inſiſts that the claim of the Scotiſh farmers, to that eaſe, is not only warranted by the preciſe words of the act, but alſo founded on juſtice and equity. We are ſorry that time does not permit us to preſent a more complete analyſis of the arguments uſed on both ſides, and muſt leave our readers to aſcertain their comparative value after peruſing theſe pamphlets, which in fact contain the ſubſtance of all that has been urged on the property tax, in ſo far as it affects the occupiers of land.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Obſervations on the Review of Mr Loudon on Planting, &c.

'*The diverſion of baiting an Author is more excuſeable than that of baiting other animals, becauſe he comes voluntarily to the ſtake.*'

JOHNSON.

SIR,

HAPPENING lately to be employed, in my profeſſional line of a maſon, in building an addition to a gentleman's houſe in Fife, my employer, who is alſo to make ſome plantations of young trees, introduced the ſubject to ſome gueſts he had aſſembled at his

his table; and, bringing forward your useful Magazine, signified his intention of employing the gentleman who had the honour of laying out the grounds of her Royal Highness the Dutchess of Brunswick, and who had pleased her so well, as at once to grasp at royal favour, by a dedication of his work on Planting, to the KING. This gentleman, he said, possessing the full extent of your credit, was entitled to the patronage also of every good farmer; and thereupon he read several long quotations from your review of Loudon's Observations on Planting. He dwelt with some complacency on the following passage, which seems to sum up your character of the work: 'We have now examined a work which promises to be of some celebrity, and calls for the particular attention of every Scotsman, because, in several respects, it may be considered as the first of the kind undertaken by a native of this country.'

Our landlord was immediately taken up by a gentleman who had perused the work, and seemed well acquainted with the subject. This gentleman said, the author was raw and ignorant wherever he introduced his own ideas; asserted that he copied from Evelyn, Miller, Hanbury, Anderson, and Marshall; and declared, that however much gold and however much tinsel there might be in the work, neither the gold nor the tinsel were the author's own.

Another gentleman said, he had heard the author recommended as a maker of hothouses on a new construction; but his improvement turned out to be an imitation so imperfect of those constructed by Mr Hay, gardener to Mr Nisbet of Dirleton, that the one half of the house was heated too much, the other too little.

For my own part, I was by no means pleased with the author when he came to speak against serpentine lines, which, from my infancy, by perusing Hogarth's book upon taste, I had been accustomed to call *the lines of beauty*; but when he came to give directions to masons in so important a part of our profession as building walls, my passion burst forth into a blaze, and I addressed the company as follows.

When, in my younger days, I wrought at the fortifications of Fort-George, under that celebrated architect Mr Adam, he used to tell us the necessity there was of lime being well mixed, and allowed to stand long, even to the extent of weeks or months, before it was fit to be used as good mortar. Nay, he told us, that one Vitruvius, an ancient Roman architect, never considered mortar as sufficiently soured or prepared for use, till it had been kept after mixture with the sand for at least three years. I remember also some of the great stones in that Fort having been displaced after they had been carefully

fully bedded, which the architect told us was occaſioned by the mortar being uſed too recently after it was made; becauſe, ſaid he, if there is the ſmalleſt particle of the lime that is unſlacked, the operation of ſlacking acts with ſo expanſive a force as to be irreſiſtible. This indeed is viſible every day on a ſmaller ſcale, when plaſter lime is uſed that has not been ſufficiently ſoured, which occaſions the burſting of different parts of the plaſter; and every one who has the leaſt experience in building muſt know, that the longer the mortar is kept, and the better it is mixed, the more firm and ſubſtantial work will be made; which is the very reverſe of the mortar made after the new and ſtrange doctrine laid down by Mr Loudon, who ſays that, in place of letting mortar lye to mellow or ſour for ſome weeks, no more ſhould be ſlacked and made ready for uſe, than what is worked up the ſame day. He adds, lime uſed in this way binds immediately, and, the longer it ſtands, becomes the harder.

Now, gentlemen, as my experience ſays the contrary, I can have little faith in Mr Loudon's directions about trees, when I ſee him, with equal confidence, giving directions in a matter which it appears to me, he knows nothing about.

The author alſo tells us, with a grave face, that a coating of moſſes is an excellent preſervative for a wall, and that it adds greatly to its beauty. This ſeems to be a conceit in which he'll get few to join him; but many will laugh at it: and as he ſeems to think that his new method of building will have the effect of producing theſe moſſes, I wiſh his employers much good of his advice.

Moreover, the author, to ſhew that he is deep read, and that his fine new theory is formed upon his ſkill in the myſteries of antiquity, tells us, that the antients uſed their lime in his way; though he will find no ſmall difficulty to produce any evidence of this aſſertion; and therefore, he does not attempt to produce it. He goes on to ſay, 'But the moderns, in general, deſtroy their mortar before they uſe it; it is ſaturated with fixed air, or, in common language, has loſt band, before it is put in the walls: hence the weakneſs, frailty, and ſpeedy decay of modern buildings, thoſe of rubble work in particular.'

Here we were interrupted by a young ſtudent of chemiſtry, who declared that the author muſt be completely ignorant of the elements of that ſcience; for nothing can be greater nonſenſe than to ſpeak of making mortar, without ſaturating the lime with fixed air.

In ſhort, Sir, we left Mr Loudon in the ſituation of the daw with the borrowed feathers. Yours, &c. MURATORE.

BRANCH III.

AGRICULTURAL INTELLIGENCE.

THE ſpring quarter, in general, proved ſingularly favourable to the operations of that ſeaſon, eſpecially on the eaſt coaſt of the iſland; and ſeed work of all kinds was got finiſhed in the moſt complete and ſatisfactory manner. The weather, till near the end of April, was exceedingly mild and temperate, which forwarded the growth both of wheat and graſs very faſt; but latterly an unfortunate change has taken place, which threatens to do much damage to the growing crops of every deſcription.

Markets for grain have of late fallen conſiderably, without any apparent cauſe; therefore the declenſion can hardly be expected to continue. We have conſtantly remarked, that, in every year like the preſent, when prices were above par, a ſtagnation of ſales took place at this time of the ſeaſon, from an apprehenſion that large importations would be made from other countries; but that, in a few weeks, matters uſually returned to ſomething like their former level. Whether ſuch a circumſtance, as we have mentioned, operates at this time, or not, it would be raſh to determine; but one thing is certain, namely, that corn dealers of every deſcription are ſhy of making purchaſes, though there is not much reaſon to believe that they are very full-handed. At the ſame time, the quantity of grain which remains in the farmer's hand, appears, in many diſtricts, to be inconſiderable.

Cattle markets have alſo declined conſiderably, there being a full ſtock on hand in all the feeding diſtricts. We apprehend, the recent ſevere weather, which muſt keep back graſs ſeveral weeks longer than expected, will leſs or more occaſion an augmentation of price, or perhaps hinder matters from going ſo low as otherwiſe would have happened. The lambing ſeaſon has been favourable, and a full crop has been got in every diſtrict.

An attempt was made to increaſe the horſe-tax; but, thanks to the wiſdom of our repreſentatives in Parliament, it was rejected by a majority. Every tax on a particular claſs of men, is unjuſt; and the firſt principle that ought to be ſtudied in impoſing public burthens, is, that ſuch ought to fall upon the whole community in direct proportion to their means and abilities. A direct tax on the farmer is preciſely the ſame thing as taking money to a certain extent out of his pocket during the continuance of his leaſe, becauſe he cannot throw any part of it back on the purchaſer of the articles which his land produces. An indirect tax, or one levied upon produce, is much more favourable to him as an individual, though eventually agriculture may be equally injured in the one way as in the other.

An addition of 25 per cent. has this ſeſſion been made to the property tax; and ſeveral regulations are in contemplation, which, as we are informed, will render this tax leſs objectionable to agriculturiſts. We earneſtly hope that ſome one or other healing meaſure will be adminiſtered; for, as the law ſtands, there cannot be a doubt but that it is particularly unfavourable to that claſs of people.——*May* 10.

Extracts from Private Correspondence.

SCOTLAND.

Letter from a Gentleman in Upper Annandale, 20. April.

'The ſeed has been lodged in the ground with uncommon advantage, in conſequence of the fine dry weather which has continued, with little interruption, ſince the middle of March. Oats are beginning to appear in braird, and alſo early ſown barley. Graſs ſeeds have been ſown in great quantities, in order to reduce the extent of land in tillage, and, of courſe, to diminiſh the charges on that ſubject, which have become ſo great, as to alarm the keeneſt improvers, and to induce a ſerious reſolution of laying out more extenſively into paſture, on farms chiefly arable.

'On ſheep farms, there is a general deſire to encloſe with the only proper ſheep fence, the ſtone dike of the Galloway form, five feet high, and open or ſnap work at the top. A great number of farmers only wait for extended leaſes, in order to change their ſtock from Black-faces to Cheviots; and many have done ſo already.

'The rearing and feeding of cattle and ſwine are underſtood much better than they were a few years ago; and the profits, on farms adapted to theſe purpoſes, appear to be inviting, beyond thoſe on grain-farms.

'Potatoes are raiſed in large quantities, and to great purpoſe. Turnips are extending every ſeaſon. Clovers, red and white, are ſown liberally, along with rye-graſs; and no crop whatever pays better, in well-dreſſed and ſuitable lands. There is ſome difficulty now in finding a proper market for the hay of ſown graſſes; but it cannot be any hardſhip on moſt farmers to conſume it on their own grounds. Lime, at an enormous expence, is ſtill the manure moſt in uſe.'

Roſsſhire Quarterly Report.

THERE never was a more favourable ſeaſon than the preſent for all kinds of ſpring work; and the harrowing proceſs, from the fine froſts which had previouſly occurred, was much eaſier accompliſhed than uſual. Wheats and ſown graſſes ſome time ago looked well; but the weather having within theſe few days changed materially for the worſe, their appearance is conſiderably altered. It is now piercing cold, with wind at north-eaſt, and frequent ſhowers of ſnow and hail, which muſt check vegetation. Laſt crop was conſidered as above an average, though, from particular circumſtances, this point cannot be eaſily aſcertained. Were an opinion formed from the Cuſtomhouſe entries, and the amount of imports and exports compared with thoſe of the two preceding years, a decided preference would inſtantly be given in favour of the crop of laſt ſeaſon,—though theſe criterions may turn out to be falſe upon an accurate inveſtigation. In the firſt place, illicit diſtillation, from which aroſe a great demand for barley, is almoſt annihilated; and, ſecondly, the fiſheries on the weſt coaſt, where ſmuggled whiſky was greatly vended, are now amply ſupplied with ſpirits of foreign manufacture: ſo, while this county is exporting on the eaſt, we are inſenſibly and indirectly importing on the weſt, and that in a degree which cannot poſſibly be aſcertained.——*May* 1.

Aberdeenſhire Quarterly Report.

'Farm work is almoſt finiſhed in this diſtrict, having hardly met with any interruption

interruption ſince it commenced. The weather, till within ten days paſt, was uncommonly fine; but now we have a return of winter, the ground being covered with ſnow every morning; and ſhould theſe barren days continue much longer, the graſs, which was beginning to vegetate, will be put back and ſeverely injured. Turnips are generally finiſhed; but as provender is plenty, people are enabled to wait the return of good weather with patience.

Land rent continues to riſe in a ratio not formerly dreamt of. Double rent is now thought a moderate riſe; triple is often expected; and there are even ſome inſtances where the former rent has been quadrupled. Whether theſe modern rents will be juſtified by the reſult, would be difficult to predict; but one thing may be fairly ſuppoſed, which is, that rent will continue to riſe until it can no longer be paid, when, it may be preſumed, the evil will inſtantly cure itſelf. In ſhort, there appears no other remedy, as, in making offers, no other *datum* is aſſumed, than one that will bring the offerer uppermoſt. Formerly, proprietors looked out for active men, of ſufficient ſtock, who had learned the rudiments of agriculture, and to ſuch gave encouragement, in moderating the rent, or, more generally, in lengthening the leaſe; to which things the preſent forward ſtate of agriculture may be attributed: But now, this wiſe ſyſtem is completely changed; for the man who offers the higheſt rent will be preferred, no matter what be his character. As to agricultural knowledge, the poſſeſſion of it is not of much advantage; for the tack, and ſeparate table, which he ſigns, contain rules, regulations, and modes of management which renders it perfectly ſuperfluous for the occupier to poſſeſs much previous knowledge in theſe matters.——*May* 2.

Morayſhire Report.

The ſeaſon has hitherto been mild and dry, and oat-ſeed is finiſhed in all ſoils and every ſituation, in the moſt complete manner. Now the weather has become exceedingly cold, with ſnow ſhowers; for the laſt ten days vegetation has been at a ſtand. Wheat and clover have not yet ſuffered; but the effect of the weather is clearly ſeen on our paſtures, by which ſtock of all kinds are much pinched. A good part of the young cattle, which had turnips in abundance, are diſpoſed of at tolerable prices, in moſt inſtances, for their winter's keep: and, from their condition and appearance, are deſigned to be ſent by the purchaſer directly to the county of Eſſex. Lean ſtock are not in requeſt here; and ſheep can only be ſold with difficulty at reduced prices.

In the end of laſt autumn, a queſtion, of importance to farmers in a corn county ſuch as this, was diſcuſſed in the Morayſhire Farmer Club, with conſiderable animation and intereſt, and I am happy now to be able to ſtate the reſult of it in the moſt ſatisfactory manner. The queſtion was, 'Whether young cattle (*i. e.* three and four year olds) ſtall fed with turnips, and kept conſtantly in the byre;—or thoſe having the run of an open ſhade and ſtraw-yard, with turnips, on a dry field, during the day, were likely to pay beſt in the ſpring?' Opinions were divided; and, to bring the matter to a fair and accurate trial, two of the members offered to make an experiment on a prety large ſcale. One of the gentlemen had his ſtock of forty winterings put into two lots, in the moſt impartial and ſkilful man-

ner, as to weight, ſize, and age. One of theſe lots was put into byres, and ſtall fed with turnip; and the other, on the ſame day, turned into the ſtraw yard and open ſhade, with turnips on the field, daily; and both ots had as much turnip offered them as they could eat. The other gentleman, with rather a ſmaller number, acted exactly ſimilar. In both caſes, the reſult has been preciſely the ſame. Notwithſtanding the open, dry winter, ſo favourable to the out-door plan, the former has paid 15 *per cent.* better on cattle at about 12l. each, beſides adding more to the dung-yard. The queſtion being fairly and ſubſtantially decided in favour of byre feeding, the practice will of courſe become general here; and it muſt be a very ſatisfactory piece of information to dealers in ſuch cattle, to be aſſured of always finding, early in the ſpring, from 400 to 500 well wintered ſtots in this county.

From the late ſtagnation in London, and conſequently in the county markets, grain of all ſorts is dull in ſale here; and at preſent, the dealers, who have all leſs or more on hand, are not inclined to purchaſe at any price. There is however little barley or wheat left in the farmer's hands, but a good deal of oats. I cannot avoid taking notice of the immenſe crop, eſpecially of wheat and oats, which has laſt ſeaſon been produced in Scotland. Of the former, the ſhipments to London have been ſo conſiderable, as actually to affect that market in a material degree. The preſent glut there, is ſuppoſed to proceed from that cauſe; and it is underſtood in Mark-Lane, that not leſs than 300,000 quarters have gone to London of crop 1804. It is however impoſſible to aſcertain, with accuracy, the exact quantity. One thing is very certain, that the dealers in that market have been aſtoniſhed at the quantity and quality of wheat from Scotland this year, and will in future have more dependence on it as a reſource for their deficiencies than they ever had before. What ſtrong encouragement does this hold out for encloſing and ſheltering the arable grounds, which, of all things, is now moſt wanted for the increaſe of grain, and of early graſs for rearing and feeding cattle; and thereby enabling the farmer to afford a greater advance of rent to the proprietors who have the ability and ſpirit to execute ſuch a neceſſary and important improvement! ——*May* 4.

Dumfrieſſhire Quarterly Report.

The ſpring has in general been favourable to the purſuits of the farmer; though, in the end of February and beginning of March, ſo much rain fell, as prevented labour on heavy ſoils, and, on dry lands, retarded the ſowing of oats till the 20th. From that time ſeed work met with no interruption, and the braird, notwithſtanding the ſharp froſt over night during the laſt week of April, is as promiſing as could be wiſhed for. Potatoes are now generally planted, but do not appear to occupy ſo great an extent of ground as laſt year. Such is the effect of low prices of any article of produce. Turnips ſtood the weather to the laſt; and Swediſh turnips, or ruta baga, are now in uſe. The culture of this article is on the increaſe; and as it anſwers well for horſes, none deſerves more ſedulous attention from the farmer.

Cattle of all kinds appear in good order; and thoſe of age and bone are drove ſouthward in March and April, leaving a fair but moderate profit

profit to the farmer. Sheep have wintered well, and are uncommonly healthy. A full crop of lambs is got; and young ſheep, bought for the June and July markets, ſold rather higher than laſt year. The demand for corn has been regular through the ſpring, chiefly for the Liverpool market.—*May* 5.

Kincardineſhire Quarterly Report.

The ground has wrought freely; many fields having been cleaned and dreſſed, which no farmer, in ordinary ſeaſons, would have thought of ſowing. The young beans, particularly thoſe in drills, preſent a moſt promiſing appearance; indeed, the braird of ſpring grains is ſtrong and equal in every caſe; and on ſome ſoils a luxuriance appears, rarely to be diſcerned in this northern diſtrict. The wheats on free land look well, though in many places they are imperfectly planted.

Turnips, owing to the open winter, kept ſurpriſingly freſh and good, though the cattle fed on them have paid but poorly for their keep. Not much lean ſtock is yet ſold; but where ſales have been made, fair prices have been obtained. Grain markets have declined much; and, for ſome time paſt, there has been little demand for any kind of grain. The corn merchants have conſiderable quantities on hand, but little remains with the farmer.——*May* 5.

Inverneſs-ſhire Quarterly Report.

The ſeed has been got into the ground in the moſt approved ſtyle; and, till about the 20th ult., the weather was remarkably mild, and vegetation much forwarder than uſual. Since that time, a conſiderable check has been experienced, as every day has been frolty, with occaſional falls of ſnow and hail, which have hurt both clover and beans conſiderably.

Throughout the winter and ſpring, a briſk demand prevailed in this northern diſtrict for all ſorts of grain, and conſiderable quantities were ſhipped for the ſouthward. At this time, however, a total ſtagnation has taken place, and prices are merely nominal. The drovers are now on foot, and buying cattle freely at our country markets. The gentlemen of this county, at their annual meeting on the 30th April, were, with one exception, unanimous in approving of all the roads and bridges propoſed in this extenſive diſtrict on the plan ſuggeſted by Government. Caithneſs and Sutherland have alſo done the ſame; and it is hoped Roſsſhire will follow their laudable example.——*May* 6.

Mid-Lothian Quarterly Report.

Since the commencement of ſeed-time, about the middle of March, the ſowing of ſpring corns has been carried on without interruption, and is now nearly brought to a cloſe. The growing wheat and young graſſes look promiſing, and the other grains have come up freely; but, lately, the weather has been very frolty and cold, which has checked the paſtures much, and rendered them very bare. The goodneſs of the ſeaſon ſeems to have had the effect of depreſſing the market for grain, for it does not appear that there are more on hand than uſual; perhaps hardly ſo much. Oats have continued moſt ſteady, and are likely to do ſo, as no ſupply can be expected from Ireland.

The demand for ewes with lamb has been fully equal to the ſupply, at much about laſt year's prices. Edinburgh market has been glutted thro

out the ſeaſon with fat cattle, which have paid the feeder poorly; in many inſtances they have left him nothing: but fortunately, for the laſt month or ſix weeks, very conſiderable numbers of fine cattle, in high condition, have been brought from the north for the Engliſh market, which will relieve thoſe parts of the country of their ſuperfluous ſtock.——*May 6.*

Berwickſhire Quarterly Report.

THE weather, during this quarter, was exceedingly favourable to the operations of the ſeaſon, which have been carried on with a facility, and completed in a ſtyle, that forms a ſtriking contraſt with the backwardly, interrupted, labours of laſt ſpring.

Turnips ſtood the winter without injury, but fell conſiderably in value, from the abundance remaining on hand at the beginning of April. Winter wheats, and young clovers, have a promiſing aſpect, and paſtures have been ſeaſonably forward; but vegetation has received a ſevere check from the extreme coldneſs of the weather for theſe twelve days paſt, the thermometer having frequently been 6 degrees below the freezing point at ſunriſe. The lambing ſeaſon has been one of the beſt in our remembrance.

The practice of ſowing ſpring wheat, after turnip, ſeems to be upon the increaſe in this county, the quantity ſown having greatly exceeded that of any former year. The ſowing of this grain commenced early in February, and was continued, in ſome ſituations, till paſt the middle of April. Towards the end of February, beans, peas, and oats, began to be put in; and the weather continuing dry throughout, even the wetteſt ſoils were harrowed in good order, and have every where made a promiſing braird. Barley ſowing is now alſo completed, except in a few caſes where the ground is ſtill occupied by the remains of the turnip crop; and fields intended for turnip fallow are in a very forwardly ſtate of preparation.

Corn markets have been declining for ſeveral weeks paſt. At Berwick, April 27th, prices were; Wheat 54s. to 60s.; Barley 24s. to 26s.; and Oats 15s. to 18s. per boll of ſix buſhels. Graſs incloſures let in the early part of the ſeaſon, at high rents, but have been conſiderably lower of late, ſo that the average will be much the ſame as laſt year.—*May 6th.*

Letter from a Gentleman near Perth, May 6.

AFTER the departure of winter, our labour for oats and peas commenced; and the ground, though ſomewhat ſoft at top, was firm below, and wrought pretty well. About the beginning of March we had very heavy rains, which ſtopped ſeed-work till the end of the month, when we were favoured with fine weather, which however did not continue long, a ſecond interruption for ten or twelve days having followed. In ſhort, I may ſafely ſay, that an oat ſeed time ſo very indifferent has not happened for ſeveral years paſt. How ſoon the rains abated, cold weather with northerly winds ſet in, which continued from the middle of April to this date, accompanied occaſionally with blaſts of ſnow and ſleet; and often the ſurrounding hills were as completely covered as in winter.

Neither the wheat nor young graſſes ſuffered from the rain, but looked amazingly well till the cutting froſts began; and from that time, till now, they have ſtood ſtill; and I may with truth add, that the fields looked better in the beginning of April than at this date. Indeed, the circumſtance is no ſurpriſing; for while I write, the hail rattles on the window, and the

adjoining

adjoining fields are quite white. The paſt days of May, inſtead of affording the proverbial dews of old, have every morning preſented us with hoar froſt on the fields, and ſheets of ice on the ponds.'

Letter from Glaſgow, May 7.

'The weather from the 1ſt January till the 20th February, was very fine for out door work; but this being rather an early ſeed-time, only a ſmall portion of grain was put into the ground. This tract of fine weather was ſucceeded by a ſtorm of rain, hail and ſnow, with a deal of thunder, which continued till the 1ſt of March; and, until the 18th of that month, it rained almoſt without interruption. From the 20th of March till the 20th of April, the weather was excellent; the whole of the ſeed was ſown in the beſt order; and the preparations for the potatoes are now in a ſtate of great forwardneſs. The wheat, a great deal of which had been ſown, held forth a moſt promiſing appearance. The oats and beans which were early ſown looked well, as alſo the graſs, till overtaken by the ſtorm of froſt, ſnow and hail, which commenced about the 24th April, and ſtill continues. This has altered the face of things very much, eſpecially the graſs and the wheat ſown on potato ground; and if a change does not ſoon take place, it will undoubtedly affect the whole of the crop.

'Our ſupplies of grain through the ſpring months have been pretty free, particularly of oats, from the north and eaſt of Scotland, and from Ireland. Our grain markets have been upon the decline for theſe two or three weeks paſt. The ſtock on hand being conſiderable, we do not think they will advance much for ſome time to come.

'State of Glaſgow Markets, May 7.

Dantzic wheat	44s. to 48s.	Linlithgowſhire meaſure.
Britiſh do.	42s. — 46s.	
Canada do.	40s. — 48s.	of 240 lib. (Nominal.)
Iriſh do.	40s. —	
Engliſh barley	33s. — 36s.	Stirlingſhire meaſure.
Scotch do.	30s. — 34s.	
Bear	28s. — 30s.	
Britiſh oats	20s. — 25s.	
Iriſh do.	22s. — 24s.	of 264 lib.
Hay	9d. to 10d. per ſtone	Tron weight.
Straw	4d. — 5d. ditto	

Letter from Falkirk, May 8.

'Had it ſo happened that the quarterly reports had been in courſe three weeks ago, a moſt pleaſing, and very flattering account of agricultural matters would have been given. The proſpect at preſent, however, is conſiderably changed, and is now much leſs promiſing. With us, it was about the middle of March before weather fit for carrying forward ſpring work ſet in; and even then, the land was ſo completely ſoaked with moiſture, that our clay ſoil could not be worked to purpoſe for ſome time after that period. But, notwithſtanding the late commencement of ſpring operations, the weather continuing uninterruptedly fine and the working cattle being generally in good condition, by great exertions, we were as far advanced by the third week of April as uſually happens. The little froſt during winter, and the heavy rains that followed, made harrowing of our

early ploughed leas a moſt tedious and laborious proceſs. Up to about the third week of April, the face of nature wore a moſt auſpicious appearance, each of her productions ſeeming to vie with another in forwardneſs and promiſe. The wheats, the young graſſes, the paſture fields, the brairds of oats and beans were all rapidly advancing; but for three weeks paſt, we have had ſharp froſt almoſt every night, the ice, ſome mornings, as thick as a crown piece, and the northern hills covered with ſnow. The conſequence has been, not only a complete check to vegetation, but a total change on the face of the country: The wheats are quite yellowed; the oats and young graſſes are ſtationary, and alſo diſcoloured; and the paſtures have in a great meaſure diſappeared. This laſt will be moſt ſeverely felt, not merely becauſe uncommon high prices have been given for graſs lands, (at leaſt twenty per cent. higher than laſt year); but from the quantity of ſtock on hand, and the graſs ſetting off ſo promiſing at firſt, they were early and fully ſtocked. It would be idle to conjecture what may be the conſequence of the preſent untoward appearances, as warm weather and genial rains may ſoon ſet all right again. During the greater part of the quarter, our grain market has kept up, but lately it has fallen, and ſeems ſtill to tend downwards. At preſent there is not much buſineſs doing, both buyers and ſellers appearing equally inclined to hold off. The ſtack yards are nearly empty. Wheat may be quoted about 45s. per boll Linlithgow ſtandard meaſure; beans about 22s. and barley 35s. per Stirlingſhire boll; oat meal 16d. per peck of 8 lib. Dutch weight.

'From the high price of barley all this ſeaſon, an increaſed breadth of land, as was predicted, is put under that grain, I believe fully beyond what was formerly occupied by it. Our butcher market has kept moderate through the laſt quarter, but has riſen a little lately. Beef in retail 8d., mutton 9d., veal 7d., all per lib. troy of 22 ounces Engliſh. At our laſt *feeing day* as it is called, (a certain day annually in April and October, when farm ſervants are hired for half a year) the wages were about a guinea up, the common run being about nine guineas for the half year; and principal hands, ſuch as can ſow, ſtack, and perform in ſhort every operation about a farm, from ten guineas to twelve pounds. They are either victualled in the maſter's houſe, or are on board wages. Although ſome may probably feel this riſe in the wages of labour preſs pretty hard on them, they muſt reſt ſatisfied in the mean time, that it is a ſymptom of increaſing national proſperity. Amongſt the greater part of farmers, however, I ſuſpect that a miſſion to propagate this creed would not be very ſucceſsful. The wages of maſons and labourers have riſen in an equal degree; the former 3s. 6d., the latter from 2s. to 2s. 6d. a day, and difficult to be got even at theſe rates.'

Eaſt-Lothian Quarterly Report.

Seed-work commenced early in this diſtrict, and, by the middle of March, a great part of the oats and beans were ſafely depoſited in the earth. Till the 24th April, fine genial weather prevailed, which cauſed the wheats and clovers to puſh off very faſt, and the oats and beans to make a cloſe and vigorous braird; but on that day an unfortunate change took place, and hitherto continues. The wind has been piercingly cold from whatever point it blowed, accompanied with ſhowers of hail and ſleet; and vegetation

not only at a ſtand, but many fields of young grain, eſpecially on ɔils, have apparently ſuffered much.

rkets, notwithſtanding theſe adverſe circumſtances, are on the fall- ınd for every article of farm produce, owing chiefly to the South- emand having abated. Wheat is from 12 to 15 *per cent.* lower t was a month ago, good ſamples having yeſterday been purchaſed ddington for 42s. a. 43s. per Linlithgow boll: and as for peas and of which a large ſupply remains on hand, ſales can hardly be made. ıttle have alſo dropped in price; and lambs are 15 *per cent.* lower aſt year, though of much better quality.

conſiderable quantity of grain was ſent to England from this diſtrict; h it is impracticable to aſcertain the extent of the exportation, much ɔeing ſhipped at Leith, and, of courſe, claſſed with the exports of that

Within the bounds of the port of Dunbar, as obligingly commu- d by a gentleman there, was ſhipped from 30th October 1804 to April 1805, 4891 quarters of wheat and flour; and a good deal, aſed on account of Engliſh houſes, remains in the granaries. From Berwick ſeveral cargoes were alſo ſhipped. Indeed, the London s ſeem aſtoniſhed at the quantity of wheat and flour ſent from Scot- his ſeaſon; and will be diſpoſed, in future, to place as much reliance for ſupplies, as they have hitherto done on foreign countries.——

ıı.

Fiars of Grain, Crop 1804.

Eaſt-Lothian.

Wheat -	46s. 1¼d.	Beſt Oats -	21s. 2¼d.
d do. -	42s. 4¼d.	Second do. -	19s. 8d.
do. -	35s. 7¼d.	Third do. -	18s. 5d.
Barley -	33s. 3¼d.	Beſt Peas - -	19s. 2¼d.
d do. -	31s. 6¼d.	Second do. -	17s. 11½d.
do. -	29s. 5d.	Third do. -	16s. 11¾d.

Mid-Lothian.

Wheat -	42s.	Beſt Oats -	18s. 6d.
d do. -	39s.	Second do. -	16s.
Barley - -	30s.	Beſt Oat Meal -	20s.
d do. -	28s.	Peas & Beans -	18s.
do. - -	25s. 6d.		

Wigtonſhire.

Ieal *per* boll of 280 avoirdupois -	37s. 4d.	Beſt Bear *p.* do. -	52s. 6d.
Meal *p.* do. -	33s. 4d.	Farm Beans *p.* do. -	46s.
Corn or Potato Oats		Malt *p.* do. - -	84s.
oll of 12 buſhels	38s.	Barley *p.* do. -	55s.
Corn or Common		Peas & Beans *p.* quarter of	
ɜ *p.* do. -	30s.	8 buſhels -	32s.
		Wheat *p.* do. -	64s.

IRELAND.

Farming Society of Ireland.

Saturday, (March 9th), ended the Spring Shew of the Society, t of which we have been favoured with by a Scots gen an

directed his attention particularly to thoſe ſubjects, and was preſent during the whole.

It appears, that though this is only the fifth Spring Shew of the Society, which was inſtituted March 1800, yet it was acknowledged by thoſe who have attended ſimilar exhibitions, that they never witneſſed a more gratifying diſplay of zeal and attention than in the members of this Society. The premiums offered were for fat cattle and ſwine, for fat ſheep of different breeds, for ſeed corn, and ploughing.

For the exhibition of cattle and ſwine, which, it ſeems, are laudably great objects of the Society, being the baſis of the proviſion trade, there appeared evidently great exertions in making improvement, and much actual advancement. Some of the cattle were certainly not inferior to thoſe produced laſt year at the Chriſtmas and Spring ſhews in London. The long-horned heifer, which obtained the medal, was under four years old, and, though ſmall, was conſidered ſuperior to all the reſt, from the lightneſs of offal, and carrying meat of the beſt quality on the moſt profitable parts. The improvement in ſwine was fully equal to any thing in London, which in this animal is more ſpeedily extended by its more prolific tendency and early maturity.

Amongſt the cattle, it was obſerved that the long-horned, the native breed of Ireland, were moſt numerous—but there were ſome excellent Herefords, two of which gained prizes. It was alſo obſerved, that there were no Devons or Highland ſtots, which are ſo much eſteemed in the London market.

On Tueſday, the firſt day of the Shew, the different animals exhibited, were diſtinguiſhed by ſingle letters painted on labels, without the owners' names. On the laſt day of the Shew, they were arranged in their reſpective claſſes, and numbered according to the order of the gradation of their merit, with labels expreſſive of the deciſions of the judges, which made this a day of inſtruction.

One circumſtance, on this occaſion, afforded additional pleaſure, that although in other places diſcontent in the loſing candidates ſometimes occurs, at this meeting a ſingle murmur againſt the deciſion of the judges was not obſerved.

It is underſtood that ſome of the fatteſt animals exhibited had been brought to that ſtate without the very expenſive proceſſes alleged to be made uſe of in other places, and ſome of them chiefly by potatoes. This is of more importance than can well be imagined, as every inducement to raiſe great quantities of that uſeful root, will occaſion it to be in great plenty, and at a lower price; and from ſome late improvements made in increaſing its produce with a ſmall quantity of manure, there is no ſaying to what an extent this may be carried.

There were two pens of South-Down ſheep—the hoggets were very much approved of. The five hogget wethers of the new Leiceſter breed, ſhewn by Mr Garnett of Summerſeat, which always had been fed on graſs, without hay or any other food in winter, were ſold to a butcher at 4l. each.

The ploughing-match was conducted with equal ſpirit and order at Mr Garnett's of Huntſtown, about four miles from Dublin. This is the ſecond ſeaſon that Mr Garnett has accommodated the Society with land for the

the purpoſe, and has given the gentlemen attending an elegant cold collation.—The ſituation was particularly intereſting; exhibiting, all around the ploughing ground, the great benefit Mr Garnett has experienced from converting into tillage old moſſy graſs lands, ſome of which had, by conſtant mowing without manure, become unproductive of graſs, and, ſince being tilled and laid down with clovers and rye-graſs, afforded *laſt year* two very luxuriant crops of hay.

It was pleaſing to hear it remarked, that at former exhibitions ſeveral ploughs with four horſes and drivers were entered, but, ſo general was the advantage felt of uſing two horſes without a leader, that not one with four horſes or four oxen was brought forward on this occaſion. The ploughs were all of them, except three, the Scots ſwing plough, and the execution was in general good, though there is ſtill room for improvement. Some were made in Ireland. That of the Rev. James Symes, of Ballyarthur, who gained the firſt premium and prize cup, was drawn by two very ſmall ſpayed heifers, and held by a lad of nineteen years of age, a native of the county of Wicklow. To remedy the inconvenience of importing theſe ploughs and other agricultural implements, ſeveral members of the Society have joined in order to raiſe a ſum of 3000l. for the eſtabliſhment of a manufactory in Dublin, which is expected to commence immediately. From the ſteadineſs of draft of the ſpayed heifers, as well as the eaſe with which they are trained, it appears deſirable that they ſhould be more frequently tried.

The Suffolk punch mares, exhibited by Mr Grierſon, were noble draft animals, and were highly approved of by all the ſpectators. This breed, when not too large, combine ſtrength and activity, and ſeem well adapted to this country.

The ſeed corn produced was deemed by the judges equal to any ſamples imported. Mr Grierſon's oats, which gained the prize, were ſown on the 14th of April, and reaped the 31ſt of Auguſt, producing 25 barrels to the Iriſh acre, or 3 quarters 2 buſhels to the Engliſh acre; each buſhel Winchester, ſtriked, weighing 45 lb. 9 oz. A very miſtaken opinion has been inculcated by ſome perſons, that, the greater degree of moiſture in Ireland being unfavourable to the ripening of grain, paſturage, inſtead of tillage, ſhould meet the greater encouragement. There cannot be a more pernicious and unfounded error. Forty years ago, it was believed that wheat would not ripen in the north of Scotland; whereas, now, wheat of the beſt quality is grown in that part of the United Kingdom.

His Excellency the Lord Lieutenant viſited the exhibition, and expreſſed himſelf highly pleaſed with the inſtructive arrangement of the buſineſs.

A great concourſe of people attended every day, and ſeemed all to be impreſſed with a ſenſe of the advantages and rapid progreſs of the inſtitution. We join ſincerely in Lord Sommerville's encomium, at his laſt meeting in London, on the ſpirit and arrangement of the Farming Society of Ireland; and our beſt wiſhes are, that there may be no relaxation in their exertions.

The Society, as uſual, dined together three days during the Shew. Agricultural ſubjects were the general topics of converſation; and very intereſting experiments, ſince the former meetings, were detailed.

Mr Lambert, of Beau-park, took the chair each day in the abſence of the

preſident and vice-preſident.—The following among many other toaſts were given:

His Majeſty, the zealous friend of Agriculture.

His Royal Highneſs the Prince of Wales.

Earl of Hardwicke, patron of the Society.

Right Hon. John Foſter, preſident, the ſteady promoter of Iriſh huſbandry.

The Marquis of Sligo, vice-preſident, and thanks for his exertions in promoting the objects of the Society.

Lord Sheffield, and the agricultural ſocieties of Great Britain.

The memory of the late Duke of Bedford.—Speed the Plough.—Horn, Corn, Wool and Yarn.—Lord Sommerville and the Fleece.—The Duke of Bedford and the Woburn meeting.—Sir John Sinclair.—Mr Coke of Norfolk.—The memory of Mr Bakewell.—Mr Kirwan, and the application of chemiſtry to agriculture, draining, and irrigation.

The following account of the Shew is given by authority.

Dublin Spring Shew.—Tueſday March 5th 1805.

NEAT CATTLE.

Claſs. OXEN.

1. *For the beſt fat Ox three years old* £.10
Richard Reynell Eſq. Reynella (*Hereford*
Premium adjudged to Richard Reynell Eſq

2. *For the beſt fat Ox, four years old* £.10
Earl of Meath (*long-horned*) deficient in merit —Premium withheld.

3. *For the beſt fat Ox. five years old* £.10
Thomas Yates Eſq (*Holderneſs*) deficient in merit.—Premium withheld.

4. *For the beſt fat Ox, ſix years old or upwards* - - - £ 10
1. Thomas Going Eſq. (*long-horned*) for beſt quality of fleſh, leaſt offal, and *only* one year feeding.
2. William Filgate Eſq. (*ditto*) two years feeding.
3. Walter Keating Eſq. (*ditto*) fleſh not put on the beſt parts
4. Earl of Meath (*Hereford*)
5. Edward Hunt Eſq (*Holderneſs-croſs*)
6. Thomas Yates Eſq. (*long-horned*)
Premium adjudged to Thomas Going Eſq

5. *For the beſt of the prize Oxen,*
The Silver Medal
1. Thomas Going Eſq
2. Richard Reynell Eſq.
The Medal adjudged to Thomas Going Eſq.

COWS OR HEIFERS.

6. *For the beſt fat Cow or Heifer, three years old* - - - - £ 10
John Tandy Eſq *Cow (long-horned)*, deficient in merit.—Premium withheld.

7. *For the beſt fat Cow or Heifer, four years old* - - - - £.10
1. Richard Reynell Eſq. Killinan, *Heifer, (long-horned)*
2. John Fetherſton Eſq., *Heifer, (polled)*
The premium adjudged to Richard Reynell Eſq

8. *For the beſt fat Cow or Heifer, five years old* - - - - £ 10
1. Richard Reynell Eſq. Reynella, *Cow, (Hereford)* to qualify.
2. George Grierſon Eſq. *Heifer, (long-horned)* ditto.
3. John Fetherſton Eſq. *Cow, (ditto)* ditto.
4. James Fetherſton Eſq *Heifer, (ditto)* ditto.
5. Rev. Nicholas Aſhe, *Cow, (Holderneſs-croſs)* ditto.
6. Earl of Meath, *Heifer, (middle-horned)* ditto.
Premium adjudged to Richard Reynell Eſq

9. *For the beſt fat Cow or Heifer, ſix years old or upwards* - - £ 10
1. John Fetherſton Eſq. *Cow, (long-horned)*
2. John Gerrard Eſq. *ditto, (ditto)*
3. James Fetherſton Eſq. *ditto, (ditto)*
4. Richard Reynell Eſq. *ditto, (Hereford)*
5. Robert Shaw Eſq. *ditto, (long-horned)*
6. Guſtavus Lambert Eſq *ditto, (Herefford)*
7. Edward Hunt Eſq. *ditto, (Holderneſs-croſs)*
8. Hon. Sir Edward Crofton, Bart. *ditto, (long-horned)*
9. William Harvey Eſq. *ditto, (ditto)* deficient in merit.

10.

10. Earl of Meath, *ditto*, (*Hereford*) ditto.
11. William Hutton Eſq. *ditto*, (*long-horned*) ditto.
12. Colonel La Touche, *ditto*, (*Holder-neſs*) ditto.
Premium adjudged to John Fetherſton Eſq.

10. *For the beſt of the prize Cows or Heifers.* The Silver Medal.
1. Richard Reynell Eſq. Killinan.
2. John Fetherſton Eſq.
3 Richard Reynell Eſq. Reynella.
The Medal adjudged to Richard Reynell Eſq. Killinan.
Judges for Cattle.
Richard Lloyd Eſq.
James Lewis Eſq.
Mr Thompſon, *Butcher.*

Claſs. SHEEP.

11. Combing wooled. *For the beſt pen of five fat Wethers, one year old, ſpring* 1804 - - - - £ 15
1. John Gaſon Eſq. (*Leiceſter*)
2. Samuel Garnet Eſq (*ditto*)
Premium adjudged to John Gaſon Eſq.

12. Clothing wooled. *For the beſt pen of five fat Wethers, one year old, ſpring* 1804 - - - £ 15
Owen Wynne Eſq. (*South Down*)
Premium adjudged to Owen Wynne Eſq.

13. Combing wooled. *For the beſt pen of five fat Wethers, two years old, ſpring* 1804 - - - £ 15
1. Thomas Going Eſq. (*Leiceſter*)
2 James Lewis Eſq. (*ditto*)
3. Colonel La Touche, (*ditto*)
4. Brabazon Morris Eſq. (*ditto*)
Premium adjudged to Thomas Going Eſq.

14. Clothing wooled. *For the beſt pen of five fat Wethers, two years old, ſpring* 1804 - - - £ 15
Owen Wynne Eſq. (*South Down*)
Premium adjudged to Owen Wynne Eſq

15. *For the beſt Wether ſelected from the pens.* The Silver Medal.
The Medal adjudged to James Lewis Eſq. for a wether in his pen of five ſheep, Claſs 13.
Judges for Sheep.
Robert St George Eſq.
John Armſtrong Drought Eſq.
Bernard Mahon Eſq.

Claſs. SWINE.

16. *For the beſt fat Pig, from ſix months to one year old* - - - £ 10
George Grierſon Eſq's.—diſqualified being a boar pig.—Premium withheld.

17. *For the beſt fat Pig, one year old* £.10
1. Thomas Going Eſq.
George Grierſon Eſq's—diſqualified, being a boar pig.
Premium adjudged to Thomas Going Eſq.

18. *For the beſt fat Pig, two years old* £.10
1. Richard Reynell Eſq. Killinan.
2. Mrs M. Reynell, Killagh.
3. Colonel La Touche.
4. William Jones Eſq.
5. John Facon Eſq. deficient in merit.
Premium adjudged to Richard Reynell Eſq. Killinan.

19. *For the beſt fat Pig, three years old or upwards* - - - £.10
1. Richard Reynell Eſq. Reynella.
Chicheſter Forteſcue Eſq. diſqualified.
Premium adjudged to Richard Reynell Eſq

20 *For the beſt of the prize Swine,* The Silver Medal.
1. Thomas Going Eſq.
2. Richard Reynell Eſq. Killinan.
3. Richard Reynell Eſq. Reynella.
The Medal adjudged to Thomas Going Eſq.
Judges for Swine.
John Browne Eſq.
Guſtavus Lambert Eſq.
John Fitzpatrick jun. Eſq.

Claſs. SEED CORN.

21. *For the beſt barrel (twenty ſtones) of red Wheat, (being part of a parcel of at leaſt twenty barrels)* - £.10

22. *For the beſt barrel of white Wheat, (ditto)* - - - - £.10
The premiums for wheat will be decided at the Society's houſe, New Sackville-Street, on the 20th September 1805.

23. *For the beſt barrel (ſixteen ſtones) Barley, (ditto)* - - - £.10
1. Colonel La Touche, weight per Wincheſter buſhel ſtriked, 53 lib. 11 oz.
Sown broadcaſt, with clover after turnips, on a ſtrong, deep ſoil, ſlightly mixed with limeſtone gravel, on a granite bottom: Produce 18 barrels per Iriſh acre. The clover promiſes well.
2. George Griarſon Eſq. (ditto) 54 lib. 5¼ oz.
Sown broadcaſt with clover and ryegraſs, after drilled turnips, velly loam: Produce 20

Iriſh acre. The clover in fine condition.

*** The Right Hon. David La Touche exhibited a barrel of barley, firſt in quality, which weighed, per buſhel, 55 lib. 1¼ oz; but as it was not the produce of the laſt year's growth, it was conſidered not to be entitled to the premium as ſeed.

4. *For the beſt barrel (fourteen ſtones) of Oats.* (*ditto*) - - - - £ 10

1. George Grierſon Eſq. (*potato oats*) (*ditto*) 45 lib. 9 oz.

Sown broadcaſt with clover and rye-graſs 14th of April, after drilled potatoes, on a gravelly loam, reaped 31ſt Auguſt: Produce 25 barrels per Iriſh acre.

2. John Facon Eſq. (*ditto*) (*ditto*) 44 lib 3¾ oz.

Sown broadcaſt on a ſtrong clay, with a mixture of limeſtone gravel: Produce 24 barrels per Iriſh acre.

3. Colonel La Touche, (*ditto*) (*ditto*) 44 lib.

Sown broadcaſt after a crop of wheat, on a deep ſtrong ſoil inclined to limeſtone gravel, on a granite bottom: Produce 16 barrels per Iriſh acre.

4. Robert Shaw Eſq. (*potato oats*) (*ditto*) 42 lib. 1 oz.

Sown broadcaſt, twelve ſtones of ſeed to the acre, on a moiſt clay loam after barley, one ploughing: Produce 20 barrels per Iriſh acre.

5. Rev. James Symes (*potato oats*) (*ditto*) 43 lib. 1¾ oz.

Sown in drills nine inches aſunder, hoed once, on a deep, thingly loam: Produce 19 barrels per Iriſh acre.

6. George Audouin Lamb Eſq. (*potato oats*) (*ditto*) 42 lib. 15½ oz.

Sown broadcaſt on a clay ſoil, fourteen ſtones of ſeed to the acre, after barley: Produce 22 barrels per Iriſh acre.

7. Mr William Higginbotham (*potato oats*) (*ditto*) 42 lib. 14¾ oz.

Sown broadcaſt, on a clay ſoil after wheat: Produce 25 barrels per Iriſh acre.

N. B. Some of the ſamples of barley and oats, though ſuperior to others in ſpecific weight, were conſidered inferior in other reſpects as ſeeds.

Judges for Seed Corn.

Frederick Geale Eſq. *Corn-Merchant.*
James Conolly Eſq. *ditto.*
Richard Lloyd Eſq.

Claſs. GRASS SEEDS.

25. *Meadow Foxtail*, Alopecurus Pratenſis. *For the greateſt quantity of ſound, pure, and well ſaved ſeed, collected in Ireland, not leſs than two hundred weight* £.10

26. *Great Meadow Graſs*, Poa Pratenſis. *Ditto, ditto,* - £.10

27. *Meadow Feſcue Graſs*, Feſtuca Pratenſis. *Ditto, ditto,* - £.10

The premiums for graſs ſeeds will be decided at the Society's houſe, New Sackville-Street, on the 20th September 1805.

Claſs. HAY.

28. *To the perſon who ſhall* bona fide *Sell, in Smithfield market, Dublin, the greateſt quantity of Hay, cut in truſſes of 56 lib. each, between the 1ſt January and the 31ſt December* 1805, *not leſs than twenty tons* - - - £.30

29. *To the perſon who ſhall* bona fide *Buy the greateſt quantity, not leſs than five tons* - - - - £.10

The premiums for hay will be decided at the Dublin ſpring ſhew 1806.

PLOUGHING-MATCH, Friday 8th of *Claſs.* March 1805.

30. *To the perſon who ſhall Plough half a rood of land, five inches deep, in the beſt manner,* - The Cup, *and* £.15

To the next beſt ditto - - - £. 3

1. Rev. James Symes, a *Scotiſh ſwing plough* (drawn by two ſpayed heifers), held by James Doyle, *a native of Ireland*, without a leader.

2. Rev. Charles C. Beresford, *ditto*, (two horſes) Walter Fowler, *a native of Scotland*, ditto.

3. John Garnet Eſq., *ditto*, (ditto) Francis Oliver, *ditto*, ditto.

4. George Grierſon Eſq. *ditto*, (ditto) William Keppy, *ditto*, ditto.

5. John Garnett, *ditto*, (two oxen) Thomas Kelly, *a native of Ireland*, ditto.

6. John Criſty Eſq., *ditto*, (two horſes) Owen Connor, *ditto*, ditto.

7. Robert St George Eſq., *Leiceſter wheel plough*, (ditto) James Tribee, *ditto*, ditto.

8. Sir Thomas Lighton Bart. *Scotiſh ſwing plough*, (ditto) James Chriſlom, *a native of Scotland*, ditto.

9. Dowager Counteſs of Ormond, *ditto*, (ditto) Andrew Whitelaw, *ditto*, ditto.

10. Hon. James Butler, *ditto*, (ditto) Thomas Read, *a native of Ireland*, ditto.
11. Guſtavus Lambert Eſq., *ditto*, (ditto) George Campbell, *a native of Scotland*, ditto.
12. Thomas Brunton Eſq., *Iriſh ſwing plough*, (ditto) Edward M'Daniel, *a native of Ireland*, ditto.
13. William Brunton Eſq., *ditto*, (ditto) James M'Nally, *ditto*, ditto.

The Cup and Premium of £.15 adjudged to the Rev. James Symes.

The ſecond premium adjudged to the Rev. Charles Cobbe Beresford.

31. *To beſt Ploughman* - - - £.10
To the next beſt - - - £.5
Firſt premium adjudged to James Doyle.
Second premium adjudged to Walter Fowler.

32. *To the beſt Ploughman, a native of Ireland* - - - - £.5
Premium adjudged to James Doyle.
33. *To the owner of the beſt pair of Plough Horſes* - - - £.10
George Grierſon Eſq. (*Suffolk punches*)
Premium adjudged to George Grierſon Eſq.
34. *To the owner of the beſt pair of Plough Oxen or Heifers* - - £.10
1. John Garnett Eſq. (*oxen*)
2. Rev. James Symes, (*ſpayed heifers*)
Premium adjudged to John Garnett Eſq

Judges for Ploughing.
William Trench Eſq.
Barnett Schew Eſq
James Braſſington Eſq.

By Order.
JOHN HAMILTON, *Sec.*

ENGLAND.

Eſſex Quarterly Report.

It is with pleaſure the taſk of giving a report of this diſtrict is reſumed, not only becauſe it is deſireable to extend provincial information, but on account of the very pleaſing proſpect which the earth at this time preſents on every hand. The fields are now clothed with their full variety. Spring corn and pulſe have made their appearance; the wheats look well, and have generally gone through their courſe of hoeing; barley will, it is apprehended, be rather too thick. Peas and beans made their appearance about ten days ago, and hoeing will in a few days generally commence. From tares and clover, an abundance of feed may be expected. The graſſes alſo look well. The weather, throughout the laſt quarter, has been favourable to the operations of huſbandry. A few froſty nights have occurred, but theſe have not much impeded vegetation. The fallows for the enſuing year are nearly all broke up. Cattle of all kinds are dear. Horſes for draught maintain a high price: good ones as high as 40 or 45l. Cows with calf up to 20l. Calves for ſucklers, from 25s. and 30s., to two guineas. The lambs thrive well; but few are yet fit for the butcher, unleſs near the metropolis.——*April* 20.

Letter from a Farmer in Wales, May 4.

'Within theſe few days, we have had a great fall of ſnow, which ſoon went off in the valleys; but the mountains around us are ſtill covered; and the wind, which is ſharp and boiſterous, has checked vegetation very much. Very little ground remains unſown; and I ſcarcely ever remember the diſtrict ſo forward at this ſeaſon of the year. Some cattle were turned out before the bad weather ſet in; but the generality of people muſt keep them in the yard a while longer.

'We have at preſent a good demand for cattle of all kinds, though not many fat ones remain on hand. Sheep are advancing in price, as likewiſe pigs, which, like many other articles, are always at one extreme or other. Beef and mutton ſell at 7d. and 9d. per lib. avoirdupois, a

ing to quality. Corn has kept pretty ſteady during the laſt quarter, and cheeſe has been lower than for ſeveral ſeaſons paſt.

'Land rents are ſtill on the advance, though the moſt of landlords are ſatisfied with 20s. per Engliſh acre for good ground, if it is at any diſtance from market. Hay and paſture land, in good condition, is a little higher; but very few arable fields exceed what I have mentioned. We have tithes to pay, which certainly is a conſiderable addition where good crops are raiſed; but as for pariſh taxes we can compute their amount; and, allowing them to be as high as 3s. per acre, it will be found that our rents are much inferior to thoſe in Scotland, while our lands are equal in quality at leaſt, and our climate much better. In ſhort, I cannot for my life find out how ſuch rents as you mention can poſſibly be paid.'

Letter from Canterbury, May 5.

'Our market yeſterday was rather briſker for wheats. At Maidſtone, on Thurſday laſt, that article brought from 75s. to 102s.; Barley from 38s. to 48s.; and beans from 40s. to 46s. The price of butcher meat, here, is, Beef and Mutton 8d., Veal 9d. and 9½d., Pork 9d., Lamb 1s., Bacon from 7½d. to 12d., all per pound avoirdupois. I ſhall be happy to furniſh a particular report on Kentiſh huſbandry for your next publication; but circumſtances prevented me from doing myſelf that pleaſure at this time.'

Yorkſhire Quarterly Report.

THE report of the preſent quarter may record, what has ſeldom happened in the markets for grain, a reduction of upwards of 20s. p. quarter in the price of wheat, at a time of the year, when grain is uſually an advancing article, and when the heavy deductions for the ſeed time have been made from all ſorts, ſo as to leave the remaining ſtock in comparatively few hands. The full produce of wheat in North Britain, by which it has been enabled to ſpare much from its own conſumption, ſo differently from what has heretofore been the caſe, added to larger importations than could reaſonably have been expected from the ſtate of the continent, as well as the immenſe quantities of potatoes turned out from their well preſerved hoards in the ſpring, are among the more immediate cauſes of ſuch a phenomenon as a falling corn market in ſummer. From preſent circumſtances, however, no poſitive inference can be made; as preſaging the probable ſtate of prices, before the next harveſt. But be that as it may, the growers of wheat, in the proportion of nearly two thirds of the whole in this iſland, will be great loſers by that crop, at any price we have yet ſeen. The markets for fat cattle and ſheep are alſo dropping; while thoſe for lean ſtock and horſes remain high.

The ſeaſon has been favourable for the ſowing of all ſorts of ſpring corn; and the ſubſequent plentiful waterings from continued rains and ſhowers, can ſcarcely fail to encourage a luxuriant growth: yet a conſiderable check has occurred by ſevere froſt for ſeveral nights in ſucceſſion during the laſt week. The crops of wheat are not at preſent looking well, though clovers and other graſſes are generally very promiſing. The turnips continued, to the laſt, to afford much more than their uſual proportion of nutriment: indeed the conſumption of them is even now ſcarcely over, and great waſte has enſued

enſued from want of eating them in time. Much good hay has been ſpared, which article is about 4l. per ton. Meadow and paſture graſs is not uncommonly forward, particularly on the colder and moiſter ſoils. The fall of young lambs is deemed not ſo numerous as that of laſt year; though the ſeaſon has been ſo favourable to the ſhepherding and preſervation of them. The fallow preparations for turnips and wheat, are not much advanced. The beſt wheat is now ſelling heavily at from 10s. to 12s. per buſhel; but it ought to be underſtood that there remains little or none of good old wheat on hand; and the ſample of the laſt harveſt is of inferior quality. Barley 6s.; Oats 3s. 6d.; and Beans 5s. 6d. per buſhel of Wincheſter. Potatoes 1s. 6d.; Beef, Mutton, and Veal, 7d. per lib. avoirdupois.—*May* 5.

Letter from London, May 6.

'Since my laſt, we have (contrary to expectation) had ſeveral large arrivals of foreign grain from Holland, and the northern ports; and the ſupplies from the eaſt coaſt of both wheat and flour (of which a large quantity has come from Scotland) and of flour from the inland counties, have rather increaſed, notwithſtanding the diſcouraging accounts, from this market, of the already heavy ſtock of flour on hand, much of which muſt be caught by the warm weather, and rendered unſaleable. You will not therefore be ſurpriſed to find that prices have experienced a conſiderable depreſſion. Fine barleys have declined a little; but middling and ordinary ſorts have been quite a drug, from our diſtillers having been doing but little, owing to the large importation of malt ſpirits from Ireland. Of oats the ſupply has been very conſiderable from the northern coaſt, until within this week or ten days; and the arrivals from abroad were earlier, and have been greater than expected. But our conſumption at this ſeaſon is ſo great, that any falling off in the ſupply is immediately felt. I am therefore of opinion, that whatever temporary depreſſion a large arrival of foreign oats may cauſe in ordinary ſorts, that good qualities are likely to ſupport preſent prices through the ſummer. As to wheat, it is impoſſible to judge, from the preſent ſtate of markets, what prices may be before a new crop can be come at; but it is allowed that the preſent appearance of the growing crop is favourable; and there ſeems no reaſon to doubt our ſupplies from the Baltic being large; while the ſtock at preſent on hand is great. On the other hand, unleſs we are all deceived (which cannot be the caſe) as to the laſt year's crop being in many parts *very* defective, we muſt have a ſtrong demand on this market for wheat before harveſt. Much, of courſe, will depend on the appearance of the growing crop from time to time.

'On this day week, the price of wheat fell ten ſhillings per quarter; but our ſupply from the coaſt for this day's market being ſmall, and having a number of buyers from the country, fine dry ſamples, as well Engliſh as foreign, were readily taken off at full five ſhillings advance; at the ſame time, there was ſo little diſpoſition to purchaſe the inferior ſorts, that we can ſcarcely note prices any better for theſe. Barley being more in requeſt to-day than of late, and the quantity ſmall, prices advanced three ſhillings per quarter; beans are one ſhilling per quarter dearer, but peas remain without alteration.

'Our ſupply of oats on ſale being now nearly confined to the ordinary

foreign ſamples, the ſale was briſk to-day for fine, as well as thoſe of good uſeful quality, and prices full one ſhilling per quarter higher.

'The price of hay has advanced a little for ſome market days, owing to the late cold, backward weather. But the wheats are every where looking well, and the ſpring ſown grains were all got in in the beſt order.

'The expectations formed of the graſs ſeed market have been completely defeated. The demand from the country, which was eagerly looked for from day to day, and week to week, did not come to any thing like the amount expected; and the ſeaſon cloſes with heavy loſſes to the holders over year and the importers.

'State of London Markets, Monday, May 6.

Wheat, new	56s. to 72s.	Fine Eſſex	88s. 92s. 96s.
——— North Country, new	56s. — 68s.	Fine	84s. 88s.
——— Foreign Red	50s. 60s. — 78s.		
——— White Dantzic	70s. — 85s.	Fine	88s. 92s. 96s.
Blacked Wheat	56s. — 63s.		
Rye	50s. — 52s.		
Barley	32s. — 37s.	Fine	41s.
Malt	70s. — 76s.		
White Peas	36s. — 40s.	Boilers	48s. 50s.
Grey do.	38s. — 42s.		
New Small Beans	41s. — 44s.		
New Tick do.	35s. — 40s.		
Oats Long Feed	19s. — 24s.	Frieſlands	25s. 29s.
——— Polands	23s. — 27s.	Fine	29s. 31s.
Fine Flour delivered at	75s. — 80s.	per ſack of 2½ cwt.	
North Country do.	55s. — 68s.		
Red Clover	44s. — 66s.	Fine	72s. 82s. *p.cwt.*
Hay	3l. 10s. — 4l. 10s.	per load of 18 cwt.	
Straw	2l. 8s. — 2l. 14s.		

OBITUARY.

Died at Edinburgh, on the 24th February laſt, ROBERT KENNEDY Eſq. younger of Underwood, in the twenty-firſt year of his age.

Though not perſonally acquainted with this young gentleman, we enjoyed, through the medium of our Magazine, many opportunities of appreciating his merits, and ſanguinely indulged a hope that he would long remain a tower of ſtrength to the work under our management. Feeling as we do under the diſappointment of theſe hopes, it becomes us to pay our tribute of reſpect to his memory, and to notice, in a curſory manner, the ſingular talents which he eminently poſſeſſed.

Mr Kennedy, according to our information, when a boy, diſcovered all the prudence and ſagacity of age; and at a period of life, when young men, in general, are too apt to prefer pleaſure to inſtruction, ſedulouſly cultivated thoſe faculties with which nature had ſo liberally endowed him. His thirſt for knowledge was inſatiable; his activity unremitting; his induſtry indefatigable. His intellectual vigour was only ſurpaſſed by his modeſty: and he poſſeſſed a talent, rarely acquired by men of ſtudy, an intuitive

ve perception and juſt appreciation of human character, which enabled , at all times, to regulate his behaviour according to the preciſe circum- ces in which he was placed. The want of this quality—a quality which lely nature's gift, and not to be acquired—has marred the uſefulneſs of beſt informed people, and rendered the greateſt geniuſes of leſs uſe to ety than others of more moderate abilities.

ural and political economy were his darling ſtudies; and on theſe ices his ideas were clear, liberal, comprehenſive and practical. The ers of this work have, at different times, peruſed ſpecimens of his abi- , particularly thoſe able and maſterly diſcuſſions under the ſignature of Œconomicus, on the 'impropriety and inexpediency of attempting to ulate the value of labour;' and had it pleaſed the Almighty to have inued the exerciſe of ſuch commanding powers as are there diſplayed, would in a few years undoubtedly have been regarded as the firſt philo- ier of the age. While we feel ſincerely on account of his premature h, (and none perſonally unconnected with him have greater cauſe), we ſubmit without murmur to a diſpenſation of Providence not to be fa- ned, far leſs arraigned by any human being.

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he following Elegy has been ſent us by a correſpondent who warmly red Mr Kennedy's productions,

he Memory of the late Mr Kennedy, *Author of Papers in the Farmer's Magazine, ſigned* Pol-Œconomicus, *by an Agriculturiſt.*

——————præcipe lugubres
Cantus Melpomene, cui liquidam pater
Vocem cum cithara dedit.
Ergo Quinctilium *perpetuus ſopor*
Urguet?——————

— — — — — — —
Quando ullum inveniet parem, Hor. Ode xxiv.

Sing, Muſe of Woe, thy direſt ſtrain,
Maid of the harp, and voice ſerene;
Our peerleſs friend's for ever bound
In death's eternal ſleep profound. S.

In early youth's auſpicious dawn,
By energy ſupreme inſpir'd,
His mind by Nature ample drawn,
And keen by brighteſt ardour fir'd,

O'erleaps of time the vulgar bounds
That trammel feeble, mortal powers;
The mazy depths of lore expounds,
That foil the ſage's riper hours.

To diſſipate the morbid fumes
Enveloping crude feudal brains,
His lucid pen the taſk aſſumes,
And truth her radiant reign regains.

What boots it that he ſhone ſo bright?
Where now the powers that rank'd him high?
His nervous mind's reſplendent light,
The luſtre of his ſpeaking eye?

The hour, the fatal hour arrives,
When merit feels the mortal thruſt;
While death ten thouſand knaves reprieves,
Here youth and honour bite the duſt.

Yet ſhall his mem'ry never die;
His name's to SCIENCE ever dear:
O'er his green turf the NYMPH ſhall ſigh,
For ever drop the balmy tear.

NOTICES TO CORRESPONDENTS.

An abridgement of FOURCROY *on the Philoſophy of Vegetation*, has been received, a part of which ſhall be inſerted in next Number.

The letter from Galloway, *on the Comparative Value of Land in different Diſtricts*, after being included amongſt the materials for this Number, was neceſſarily withdrawn, together with T. S. S.'s paper *on various Subjects of Rural Economy*. Both however will be attended to.

It was out of our power, at this time, to preſent *the Rules and Regulations of the Morayſhire Society for the Benefit of Widows, Orphans, &c.*; but they ſhall not be neglected.

A letter *on the Exciſe Laws*, ſigned NORVAL GRAMPIUS, is under conſideration. The author will pleaſe favour us with his addreſs, ſo as ſome explanations may be obtained.

The eſſay *on the Formation of Water Meadow*—Hints concerning the *Huſbandry of Ayrſhire*—Letter on *Sheep Farming*—and *Thoughts on the Management of Bees*, ſhall get a place as ſoon as poſſible. Many other communications have likewiſe, of late, reached us, which cannot at this time be particularized.

We are much obliged to the *Secretary* of the Holderneſs Society for favouring us with various papers relative to the proceedings of that inſtitution, ſome of which will be uſed in our next.

An ingenious review of MR AMOS's *Minutes in Agriculture and Planting*, has been ſent us. The author will pleaſe accept of our beſt thanks for the trouble taken on this occaſion.

The *Fife*, *Banff*, and *Norfolk Reports*, were received too late for publication. Many articles of intelligence were neceſſarily abridged, for which liberty the indulgence of the authors is requeſted.

No. XXIII. will be publiſhed on Monday the 12th of Auguſt.

ERRATA IN THIS NUMBER.

P. 138, 19 lines from bottom, *for*, The compariſon is fairly inſtituted, *read*, The compariſon is *not* fairly inſtituted.

P. 205, 4 lines from top, *for*, It requires good ſoil, *read*, It requires good ſoil.

THE

FARMER'S MAGAZINE:

MONDAY, 12. AUGUST 1805.

(No. XXIII.)

BRANCH I.

ORIGINAL COMMUNICATIONS.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE

On the Equalization of Weights and Meaſures.

SIR,

THE general equalization of weights and meaſures, ſo often talked of, but little perhaps to be expected in this country when we conſider the fate of a late attempt, deſerves yet not to be abandoned. It is certainly a practicable meaſure, from what has been done in France; and, though difficult to bring to perfection, may nevertheleſs be ſuſceptible of ſuch a melioration as to contribute highly to the facility of commercial intercourſe, which is all that ought, perhaps, to be aimed at. The preſent time may even be conſidered as not unpropitious to ſo deſirable a purpoſe. War, notwithſtanding of all its horrors, is yet promotive of energy; and nothing ſeems wanting to aid this neceſſary quality, in any arduous undertaking, but a ſort of unyielding perſeverance, which diſdains to be baffled by oppoſition or difficulty.

If war ſhould thus preſent no unſurmountable barrier to ſuch an end, but ſhould even be thought to favour its ſucceſs, how much more is the argument ſtrengthened by the late ſettlement in Ireland? What an impoſing aſpect would it aſſume, now that the union is perfected?

A regulation of this kind is certainly the wiſh of numbers; but, unleſs it ſhall pervade the minds of our men of buſineſs in either Houſe with that ſolicitude which its importance demands, we cannot expect to ſee it carried.

Suppoſe an attempt were made at improvement in a ſmall

way.' Suppoſe, when perpetual references are made to weights and meaſures; when buſhels, barrels, and bolls dance the hays in quarterly confuſion; ſuppoſe it were intimated by you, Sir, as your *ſerious wiſh*, that your correſpondents ſhould in future, *on all occaſions, reduce their calculations uniformly to avoirdupois weight and the Wincheſter buſhel;* and ſuppoſe this intimation were repeated, in four ſucceſſive Numbers, among the 'notices to correſpondents;' you would be gratified, I doubt not, with a willing obedience, and your readers, even the moſt commercial, would be ſaved from the puzzling effects of the preſent practice, and in many inſtances from error. My ſuggeſtion of Engliſh weights and meaſures proceeds from no partiality to the uſages of that part of the country in preference to yours, but from an idea that, as your paper circulates generally over South Britain and Ireland, it may ſeem right to adopt the weight and meaſure of the larger number of the inhabitants.

It would require a Dictionary, of not a ſmall bulk, to explain the differences of weights and meaſures, but more particularly of the latter, that prevail in Great Britain and Ireland. So ſtrangely diſſonant are theſe, that neighbouring counties differ from each other. But this ought not to create ſurpriſe, ſince three ancient kingdoms, with all their regulations in their train, are now happily blended into one; more eſpecially when it is conſidered that theſe empires have in former times been ſplit into many more, holding cuſtoms peculiar to themſelves; and thus Britiſh, Pictiſh, Iriſh, Scotiſh, Saxon, Daniſh and Norman uſages meet each other, and 'joſtle in the dark.'

Should you, Sir, concur in this ſentiment, and think that a complete uniformity in giving weights and meaſures by your correſpondents, to be ſerviceable to the diffuſion of that kind of knowledge, which it ſeems to be your ambition to attain, it may not be deemed very preſumptuous to ſay, that ſome of our Senators, who are your readers, ſeeing the eaſe and perſpicuity which this meaſure will produce in your book, may be invited to make another effort, and, by legiſlative authority, endeavour to arrange a ſyſtem of univerſal ſimplicity *—ONE WEIGHT and ONE MEASURE throughout the whole extent of our ſiſter iſlands.

I am, Sir, your obedient ſervant,

*** I.

FOR

* The uſe of tens for multipliers would be an eaſe to buſineſs. *E. G.* 10 grains = 1 ſcruple; 10 ſcruples = 1 drachm; 10 drachms = 1 ounce; 10 ounces = 1 lib.; 10 lib. = 1 ſtone; 10 ſtones = 1 cwt.

FOR THE FARMER'S MAGAZINE.

LETTER II.

In my first letter, No. XXII. p. 166, &c. I detailed the different operations necessary in the culture of turnips, both on light and heavy soils, and shall now proceed to offer my opinion concerning the most convenient and profitable mode of consuming the crop, together with a slight sketch of the subsequent management of land which has carried that valuable root.

On heavy soils, it is hardly possible to have turnips eaten by sheep upon the land where they grow. The soil in winter, from rain and snow, gets wet and poaches, which injures it extremely for the subsequent crop. Indeed wet land never recovers from the evil effect of poaching, until after a regular fallow. Likewise, on such land the sheep stand and lye always wet, in which state their food does not improve them. Therefore, if the turnips of such soils are to be given to sheep, they must be carted off to some adjoining field of lea, or grass of at least two years old; always taking care, as much as possible, to drive the carts upon the crown of the ridges, as being the driest of the land.

On some grounds very much inclined to wet, and consequently very apt to poach, I have known the turnips carried off in creels or paniers on horseback, nay, even on peoples' backs. This is only necessary in soft weather: During frost of any firmness, carts may readily be admitted.

If to be used for feeding cattle in the house or yard, the same precautions in carrying off the turnips becomes equally necessary. Perhaps sledges or hurdles, drawn by one horse, might answer for carrying turnips from such soils, better than carts, as not so liable to sink into the ground.

In consuming turnips which grow upon free, dry soils, the same cautious management is by no means necessary in the smallest degree. On such soils, sheep may, with great safety and propriety, be employed to eat them on the ground where they grow. This saves a vast deal of trouble and expence, for carting them off; the sheep thrive and improve equally well, by eating the turnips in this situation, as if they were carted off for them elsewhere; and the soil is very much ameliorated and enriched, by the dung and urine of the sheep, and by the pattering of their feet.

In this case, the sheep are to be confined by nets or flakes, hurdles or gates, so as only to get the turnips in moderate por-

tions at once, ſufficient to laſt them a week or two at a time, and ſo on progreſſively till the whole be eaten off, being always allowed the liberty of the bare ground, from which the turnips have been already eaten. This enables them to chuſe a dry place at all times to lye down upon for rumination or ſleep; and is of great advantage, eſpecially in rainy weather, or when the ſnow is melting. When one break is eaten off, an additional portion of freſh turnips is to be given them; and the ſhells, or remains of the old break, are to be picked out of the ground, that the whole may be eaten up: Or the ſhells may be carted off to another field, for ſheep that are not then meant to be fattened; or to give to young cattle, either on another field, or in the houſe, ſheds, or ſtraw-yard.

If the ſoil, where the turnips grow, is tolerably fertile, and has been previouſly well manured, one half of the turnips may be carted off, in ſtripes of ſix or eight drills each, leaving ſimilar ſtripes undrawn, to be eaten by ſheep on the ground. Thoſe led off may be given to cattle in the houſe or ſtraw yard, or to ſheep on a graſs or ſtubble field ſeparately, and the turnip field will be ſufficiently enriched. Indeed, upon good ſoil, this plan is much preferable to eating the whole on the ground, leſt the ſoil become too rich, and cauſe the ſubſequent crop of corn to lodge, by which the grain will be very much injured, and the young graſs, growing under it, may be ſuffocated and deſtroyed.

It may now be proper to give a ſlight ſketch of the ſubſequent management of land under the turnip huſbandry.

If the ſoil is good, ſo much of the land as is cleared, by having the turnips eaten off before the middle of March, may very properly be ſown with wheat, after once ploughing, either drilled or broad caſt. So much of the land as is later in the ſeaſon of being cleared, muſt be cropped with barley or oats, after once ploughing; and theſe likewiſe may either be ſown in drills or broad caſt.

Whatever grain may have been ſown after the turnip crop, the land ought always to be ſown off with rye graſs and clover; for it ought to be an invariable rule in huſbandry, to lay down land to graſs in good condition, both as to cleanneſs and richneſs.

The cuſtomary mixture of graſs ſeeds, for dry turnip ſoils in good condition, is rather leſs than a Wincheſter buſhel of good clean rye graſs ſeeds, ten pounds of red clover, and two pounds of white clover, to the Engliſh ſtatute acre. To this ſome add two pounds of yellow clover, and one pound of rib graſs, proportionally diminiſhing the quantity of red clover.

This

This is a very proper mixture, if the land is meant to remain in grass for two years or more. But, if for one year only, there is no occasion for any other seed, besides rye grass and red clover; and half a bushel of good rye grass to the acre will be quite enough, with twelve pounds of red clover.

After the land has been one or more years in grass, it may be broken up for oats, which may be immediately succeeded by turnips, and these again, as before, by wheat, barley, or oats, with grass seeds.

But as this plan may throw rather a larger proportion of the farm into turnips, than dung can be procured for, a crop of drilled beans or peas may be interposed between the oat crop following lea, and the subsequent turnip one.

If the soil is very good, and in high condition, the grass may be eaten bare about the end of July, then broken up, worked as fallow, and sown with wheat in October or November. Where this plan is meant to be followed, the grass seed mixture ought to have very little, perhaps no rye grass. Fourteen or sixteen pounds of red clover to the English statute acre may, in this case, be necessary; and according to this plan, the grass ought to be eaten by sheep, which may be folded on, in the way directed for eating off turnips. In this case, the wheat ought invariably to be followed by turnips, to restore fertility to the soil.

Though an enemy to rigid systems of rotation, because failures of particular crops, especially of the grass one, may render them impossible to be punctually followed; yet, on every well conducted farm, there ought to be some rule or principle of management. One general rule is or ought to be, to have as much of the land in turnips as can be properly worked and manured. A second is, to keep as much of the land in grass, pastured by sheep, as will continue to be profitable. A third, never, upon any account, to have two white corn crops in succession.

On these principles, the following systems of rotation may be held in view, as directions, not as absolute laws of proceeding.

1st,

1. year, Oats, or Wheat, from Lea.
2. —— Turnips, with Dung.
3. —— Wheat, Barley, or Oats, with Grass Seeds.
4. —— Grass: and round again as before.

This is a very good plan near a large town, where dung may be purchased, or on the sea coast, where sea weed can be procured. If the lea is broken up by what is called a rag fallow for

wheat, in the first year, wheat certainly ought not to form the crop of the third year. I have succeeded with two wheat crops in one rotation; but do not think it a safe practice.

In that successful case, the first wheat crop followed drilled beans, which had a thin dunging: This was immediately succeeded by well dunged turnips, eaten by sheep; and that again by wheat and grass seeds. This second wheat crop produced twenty-two Wincheſter bushels from each English acre.

2d,

1. year, Oats, or Wheat, from Lea.
2. —— Turnips, with Dung.
3. —— Wheat, Barley, or Oats, with Grass Seeds.
4. —— Grass.
5. —— Grass: and so round again.

Or, *3d,*

1. year, Oats, or Wheat, from Lea.
2. —— Drilled Peas or Beans.
3. —— Turnips, with Dung.
4. —— Wheat, Barley, or Oats, with Grass Seeds.
5. —— Grass: and so round again.

Either of these are very good rotations, where no dung can be purchased, nor sea weed procured; as requiring only that one fifth part of the farm be dunged annually. The same rule, of not having two wheat crops in one rotation, is applicable here, as in the first system. Indeed, in the former of these two, where two crops of grass succeed each other, in the fourth and fifth years, it will not be proper to take wheat in the first year of the subsequent rotation; because it is found that wheat, in general, does not succeed immediately after grass of more than one year old.

It has been already mentioned, that the grass crop of a rotation sometimes fails. In this case, perhaps, the best plan is to substitute drilled peas, followed by barley or oats, and grass seeds; and the amended rotation will then stand thus:

4th,

1. year, Oats after Lea.
2. —— Turnips, with Dung.
3. —— Wheat, Barley, or Oats, with Grass Seed; which having failed,
4. —— Peas or Beans drilled.
5. —— Barley, or Oats, and Grass Seeds.
6. —— Grass.

I have heard of a rotation being followed in Norfolk, something like the following:

5th,

1. year, Drilled or dibbled Peas, from one year old Lea.
2. —— Wheat.
3. —— Turnips, with Dung.
4. —— Barley, or Oats, with Graſs Seeds.
5. —— Graſs: and ſo round again.

On weak lands, where no dung can be purchaſed, nor any ſea weed procured; or where the landlord inſiſts upon half of the land being in graſs, which is often the caſe, eſpecially for the laſt five years of a leaſe, the following ſyſtem will anſwer the purpoſe extremely well, but ſtill liable to the accident of the graſs crop failing to grow, or dying out in the ſecond or third year.

6th,

1. year, Oats, or Wheat, from Lea.
2. —— Turnips, with Dung.
3. —— Wheat, Barley, or Oats, with Graſs Seeds.
4. —— Graſs.
5. —— Graſs. } All paſtured.
6. —— Graſs.

It may be proper to mention the method of raiſing turnip ſeed. Having procured good ſeed, as proved by the ſize, ſhape, and hardineſs of the turnips, ſelect, early in ſpring, a cart load of the beſt, choſen by regularity of ſhape, convexity of the top, and ſmallneſs of neck. Tranſplant theſe upon a piece of good dry rich ſoil, at proper intervals, and allow them to ripen their ſeed, which will be in July or Auguſt. Watch them well from birds, when nearly ripe, and afterwards while drying. Cut the ſeed ſtems before the ſeed is dead ripe, tie into ſheaves with ſtraw ropes, and win or dry completely. It may then either be preſerved unthraſhed, in a ſmall well covered rick, or ſome convenient out-houſe, till next ſeaſon; or thraſhed out, and preſerved in a granary. Next year preſerve the whole produce of this tranſplanted ſeed, and renew it in this manner every two or three years. It has been fully experienced, that turnip ſeed repeatedly grown without having been tranſplanted, is very apt to degenerate. The ſoil on which turnips ripen their ſeed, is very much impoveriſhed, and will require to be well manured afterwards.

In many parts of England, hay from old graſs land is a very eſſential part of farm produce; and, in ſuch ſituations, a vaſt quantity of dung is employed as top dreſſing, for the production of hay. It is even a very common condition in leaſes to lay the whole farm dung on the hay lands; and conſequently the arable land is limited, for manure, to ſuch dung, or other ſubſtitutes as can be purchaſed

elsewhere. Hence a variety of contrivances have been fallen upon, as substitutes for farm yard dung. But in Scotland, where horses, for the mere purposes of luxury, or convenience, or traffic, are not so immensely numerous as in England, the demand for hay does not require so large a proportion of land to be employed in that way; consequently the farm yard manure, generally speaking, suffices for the arable part of farms, where almost only such manure is applied, excepting the addition of lime, or marl, or shell sand, or sea weed, according to situation.

Rape dust is the cake or mash from which rape oil has been expressed, reduced into a gross powder by a mill similar to that for grinding tan-bark. It may be applied to the land, by sowing it by hand from a sheet, just before forming the drills upon which the turnip seed is to be sown. In Norfolk, they have a compound drill machine for this purpose, which distributes the rape dust in small portions into the seed slits, at the same time with the turnip seed, thereby applying this manure, which is reported to be very potent, but of short continuance, exactly to the seeds. It is said that one ton is sufficient to insure a good crop of turnips upon five acres of ground, where the drills, or rather rows, of turnips are only eight or ten inches asunder. Consequently, where they are raised in drills at twenty-eight inches distance, the same quantity of rape dust ought to suffice for a proportionally larger extent of ground.

The short continuance of the fertilizing quality of rape dust is no objection in the turnip husbandry. Sea weed, the most valuable of manures, is exactly in the same predicament. For, if a crop of turnips can be secured upon fit soil, after fertility is absolutely ascertained, by consuming the crop on the ground by sheep, as already observed, the soil is rendered greatly productive, both of corn and grass, and thereby the continuance of fertility is likewise insured, as, by good corn crops, and good grass, either for hay or pasture, an after abundance of farm yard dung, or of fertile lea, wherefrom to raise good crops of corn, and consequently increase the quantity of dung, can never be wanting.

Into this country, some years ago, a variety of rye grass, which only grew for one year, was introduced; from the use of which, very great inconvenience has been experienced, as, in general, land, with us, is continued in grass for three years, sometimes longer. It is unfortunate that there is no means of distinguishing this annual rye grass from that which is perennial; as otherwise they might be used according to the future intentions of managing the land. The annual is supposed even to grow more luxuriantly during its solitary year, and would answer admirably where

where one year of grass only was required; but no more crop is to be expected in the second year, than may be produced from fallen seed.

Where land is to be laid down to permanent grass, for two or more years, especial care must be taken to procure perennial seed. For which purpose, it ought to be procured from a respectable farmer, who can vouch that the seed is saved from a second year's crop.

With rye grass seed, as with the seeds of all other grains, I should consider a regular change, from soils of opposite description to that upon which it is intended to be propagated, to be attended with beneficial consequences. Every time of sowing this may not be necessary; but I am convinced that, universally, in agriculture, it is advisable to vary the crops upon the same soil, and to exchange seeds of all kinds alternately, from strong to light, and from light to strong.

It is of the utmost importance to know that rye grass seed be free from mixture of other seeds. Many careless agriculturists content themselves with the sweepings of hay-lofts which they can procure cheap, under the name of grass seeds. Not to mention goose-grass, which any attentive person can detect, and which is a very coarse grass, I am satisfied that great quantities of bulbous rooted oat grass, and couch or quicken, are sown every year, to the great injury of the farmer, by coarse hay, and by introducing immense abundance of their vivacious roots into the soil, requiring afterwards great care and expence to eradicate. On my entry here, I saved a field of hay, almost entirely composed of couch, which I have no doubt had been sown by my predecessor, with seed saved from hay purchased on the slovenly-managed burgess-meadows of Berwick, or bought from the stable-keepers of that place. I this season refused, at a very moderate price, an acre of the finest rye grass I ever saw in seed, certainly second year's crop, merely on account of a thin mixture of couch, evidently growing among the rye grass.

Having now completed, to the best of my knowledge and abilities, the task your friendship was good enough to suppose me equal to, I have only to wish it may prove as useful to your friend, as it has been agreeable to me in attempting to describe, and for a considerable number of years in executing practically upon my limited scale of agriculture.

I remain always, &c. &c.

Berwickshire, 15th November 1804. *Rr.*

TO

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIR,

LAST ſummer was remarkable for the deſtruction occaſioned to the turnip crop by the caterpillar. Your correſpondent M., in laſt Magazine, mentions that he had ſucceſsfully got quit of that diſaſter, by rolling a field of turnips three times.

I have been informed that ſome eminent farmers make the caterpillar to be gathered by the hand and deſtroyed; and the following method is recommended by the late Mr Philip Miller, in his Gardener's Dictionary: The ſureſt method (he ſays) of deſtroying theſe inſects, is to turn a large parcel of poultry into the field, which ſhould be kept hungry, and turned in early in the morning. Theſe fowls will ſoon devour the inſects, and clear the turnips.

For the evil of the fly, he recommends ſowing ſoot along the ſurface of each drill as of ſome ſervice.

On the ſubject of turnips, Mr Miller, who wrote not much more than half a century ago, obſerves, that it was not then many years ſince the practice of ſowing turnips for feeding cattle was introduced into Great Britain, though it was a piece of huſbandry well known to the ancients. It would alſo appear from his book, that the ſowing of turnips in drills was only then diſcovered.

There has been another method (ſays he) practiſed very lately by ſome curious farmers, in cultivating turnips, which is, by ſowing the ſeed in rows with the drill-plough. In ſome places, the rows are ſown three feet aſunder, in others four, five, and ſix. The latter has been recommended by ſome as the moſt proper diſtance; and although the intervals are ſo large, yet the crop produced on an acre, has been much greater than upon the ſame quantity of land where the rows have been but half this diſtance; and upon all the fields which have been tilled, the crops have greatly exceeded thoſe which have been hand-hoed. The late Lord Townſend was at the expence of making the trial of theſe two different methods of huſbandry with the greateſt care, by equally dividing the ſame fields into different lands, which were alternately ſown in drills, and in broad-caſt. The latter were hoed by the hand, in the common method, and the others cultivated by the hoeing-plough; and when the roots were fully grown, his Lordſhip had an equal quantity of land, which had been ſowed in different methods, meaſured,

meaſured, and the roots drawn up and weighed; and thoſe roots which had been cultivated by the plough, were ſo much larger than the other, that the crop of one acre weighed a ton and a half more than that of an acre in the other huſbandry.

NOVICE junior.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Remarks on the Huſbandry of Ayrſhire, with ſome Suggeſtions for its Improvement.

SIR,

IN the Firſt Number of your Fifth Volume, I noticed, with much ſatisfaction, ſome obſervations on the improvement of the county of Ayr. No individual feels more pride in the rapid ſtrides which our farmers have made towards improvement; yet I am anxious that the many who read your publication ſhould be called upon to reflect, that their mode of farming (though wonderful, conſidering the depth from which they have emerged) is far from being ſuch as they ſhould aſpire to, or ſuch as their own intereſt and that of their country demands. Although the ſlothful and diſgraceful diſtinction of outfield and infield is nearly forgotten; although a liberal quantity of lime is carted and ſpread, inſtead of being carried in ſacks and ſcattered by the hand; although lands are reſted ſix years, inſtead of 'at leaſt one year,' (as ſome of the old tacks on my ſmall property provide, a clauſe which would better ſuit a tropical latitude, where the year ripens more harveſts than one); ſtill there is much to learn, and much to be done. For, although the farmers of Ayrſhire have, from an obſtinate, prejudiced race, burſt at once into an active, enterpriſing ſet of men, with better cattle and better implements, yet they have by no means got much beyond the infancy of that improvement which is requiſite. I beg leave to be underſtood to refer to the great number of cultivators of ſmall farms, which certainly form by far the greater proportion in the county of Ayr.

The late Mr Fairlie of Fairlie is juſtly celebrated for having commenced, and, by his influence with others, enforced a new ſyſtem of agriculture in Ayrſhire; a ſyſtem, which nothing but binding clauſes on ſtamped paper could at that time have forced into practice, but which has made a wonderful change on the face of a large tract of country. This ſyſtem, however, although of the higheſt importance at the time, could only be conſidered as a preliminary ſtep towards that degree of practical excellence in the method of cultivation, which the patriotic look

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forward to with hopes, and which the induſtry and ſpirit of the farmers of Ayrſhire, if properly directed, cannot fail to realize.

The leaſes which were granted in purſuance or imitation of Mr Fairlie's plan, ſuppoſed the farm divided into three parts or breaks, which were to fall under the plough in rotation, each third being ſucceſſively limed at a given rate of from 500 to 600 Wincheſter buſhels per acre. The tenant became bound to take only three crops; to ſow down the third with rye-graſs and clover for hay, and then to reſt that diviſion five years in paſture. Thus each break fell ſucceſſively under the plough, and generally three crops of oats followed each other, with perhaps as much bear or barley the laſt year, as the tenant could command dung to manure. A more ſcourging ſyſtem could ſcarcely be propoſed; and nothing but the five years reſt after four years white crop and hay could ſave moderate land from abſolute ſterility. In addition to this, I muſt remark, that it was uſual to ſow, as before mentioned, rye-graſs and red clover, which being annual, or at moſt biennial ſeeds, left the land to nature for the herbage which was to ſupply the future paſture. This plan of operations, defective as it muſt appear, enabled the farmers to triple their old rents, and to begin to thrive; but from this rotation of crop they dared not to deviate, under a penalty of ſome pounds per acre. It is evident that, under ſuch ſhackles, the good farmer and the bad, are on an equal footing. The bad, it is true, is debarred from adopting a worſe mode of management; but the good is as completely precluded from attempting a better: the bad farmer is reſtrained from exhauſting the moſt valuable part of his poſſeſſion by exceſſive tillage, and then leaving it in that condition to the proprietor, whenever, from fraud or negligence, he becomes a bankrupt. But the induſtrious, thriving man, is ſhut out from all the benefits of change of crop, turnip-feeding and fallow; and the country at large loſes the chance of thoſe improvements which it is reaſonable to ſuppoſe may ſuggeſt themſelves to ſuch men, left to their own free choice. Where ſuch leaſes exiſted on my ſmall property, I have not heſitated to give the tenant a written permiſſion to deviate from this plan, where he ſhewed me that he had improvement in view; and in new leaſes, although the cuſtom of the country forbade my giving the tenant a *carte blanche*, I have ventured as far as the preſent ſtate of farming would permit; and, where I had any confidence in the integrity or ſkill of the man, have allowed him to uſe the farm as he thinks proper, provided he leaves one contiguous third, ſix years old, lea, at the cloſe of the tack. Without this proviſion, if the tenant chooſes to plough the whole of the farm, near the cloſe of his leaſe, the proprietor muſt be contented with a lower rent for ſome years

years from a succeeding tenant, until the land is again ripe for tillage. I shall not at present trouble you or your readers with my ideas on the best rotation of crops for clay soil, in a moist climate, but shall take the liberty of expressing my wishes, that some of your correspondents, more able for the task, may anticipate what I intend to offer at some future opportunity; in the mean while, I entreat indulgence for presenting the following hints to the farmers in this county, on four heads, viz. Straighting of Ridges, Sowing down for Pasture, Green Crop, and Straw Yards.

Straighting of Ridges.—The straighting of ridges, as it buries part of the soil which had been long under culture, and brings up fresh mould, which requires to be exposed some time to the atmosphere before it becomes equally productive, is not a process which proves very inviting to the farmer who looks for an immediate and productive crop. As, however, land is frequently ridged in a bad direction for carrying off the surface water, the ridges often twenty-five feet broad at one end, and ten or twelve at the other, which occasion frequent and vexatious turnings and liftings of the plough, and are at the same time very inconvenient for the cast of the sower, straighting of ridges becomes necessary for the sake of abridging labour, independent of the look of the thing, and the advantage of having the soil more equally distributed. I am, however, of opinion, that it never can be so advantageously or effectually completed as by a green crop, after which the land should be ridged up and sown off for pasture. Cross ploughing, I consider as very hurtful in clay land, as it interrupts all the furrows, and the water must remain on the land. If land is cross-ploughed, the old furrows should be cleared to carry off the water in the interim.

Sowing off for Pasture.—Ask any of our farmers from what he derives most profit, and he will answer, from butter and cheese; and yet scarcely one takes the necessary steps to secure good pasture. When I have urged the propriety of sowing white clover, I have been told it is unnecessary, as the land naturally produces it. Could there be a better reason, then, for sowing it? for, if it is a native herb, it must succeed: The truth is, that in the fourth or fifth year of pasture, the land does naturally begin to produce white clover, and just when it begins to be vigorous, the farmer ploughs it down. Is it not an object to expedite the efforts of nature, by supplying abundance of the seed, and thus to gain in the second year, what otherwise could not be expected till the fifth? It may therefore be proper to sow off with perennial rye-grass, white clover, rib-grass, and (if it must be) a little red-clover. The common rye-grass and clover, are only fit for one hay crop, and then to be ploughed down.

Green

Green Crop.—Under this head I ſhall confine my obſervations to turnip-feeding, which, though ſo well underſtood in many places, is by no means much in uſe in Ayrſhire. It is obvious, that as the want of dung for manure is the difficulty which the farmer labours under moſt, who is remote from a town, he muſt have recourſe to ſome expedient to ſupply the deficiency; and there is none better than that of growing turnips, which not only enables him to feed more cattle, but to feed them much better than the old ſyſtem of ſtraw-fodder only, and gives him an infinitely greater command of manure. I ſpeak not only with reſpect to the neceſſary number of milk-cows and young ſtock, but of thoſe alſo which at preſent he is under the neceſſity of ſelling off to the butcher comparatively lean. Turnip would prove of the higheſt importance to moor farmers, who have abundance of excellent land for the purpoſe, and who generally can graze more cattle than they can fodder; and, as it does not ſuffer from froſt early in the ſeaſon, which ſcourges the corn crops on high lands, it might afford a ſure ſupply. Beſides, on the moor edge there is a good deal of black moſſy land: on ſuch land turnip ſucceeds particularly well. If this culture was attended to, we ſhould not ſee flocks of ſheep driven miles to ſave them from abſolute ſtarvation.

Straw-yards.—There is no one thing which would have a greater effect in the improvement of this country than ſtraw-yards. The ſoil of the county of Ayr, particularly in the high lands, is generally a ſtrong clay on various ſubſoils, but frequently on till. As the water, therefore, remains longer on the ſurface of ſuch land, there is a tendency to run to ruſhes. It is palpable that, if the water ſours the ground in furrows, &c. it muſt do ſo in a much greater degree in deep footſteps, yet cattle are every where ſeen ſtruggling up to the *hocks* in mire through gateways and entrances to fields, where they are turned out to wander during the day with ſcarcely a pile of graſs to nibble at. The cattle are not benefited, but the ground is poached; and the conſequence is, that the following year ruſhes uſurp the place of ſweet graſs and white clover. I am convinced it is a miſtake to ſuppoſe that milk-cattle require this expoſure in the fields: I have known many that were not turned out at all, but were cleaned with a blunt currying-comb, and throve extremely well. But, for thoſe who are not eaſily converted from old opinions, the *ſtraw-yard* offers all the benefit of exerciſe for their cattle, without the concomitant miſchief. Let them be turned into the yard in the day time and houſed in the byre at night. Although in this county, as well as elſewhere, there are many farmers who could ill afford the expence of the Eſkmount or Roxburghſhire byre, what I propoſe is within the limits of almoſt every purſe; and though it does not promiſe all

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the advantage of ſuch uſeful buildings, it promiſes a great deal. In many places the farm ſteadings have been built ſo as to form three ſides of a ſquare, and in this area the dung is heaped. In ſuch a caſe, all that is neceſſary, is to find another ſituation for the dunghill, and to complete the ſquare by a ſtone dike three and a half feet high. If uſed for out-byres, a ſtack upon pillars or poſts forms a very good ſhed, or a very cheap one can be run up at the ſide of the barn or byre. The old thatch of ſtacks—ruſhes, which do not rot eaſily without being trod by cattle—ferns, and, in ſhort, a variety of kinds of vegetable matter may be thrown into the yard, and all in the courſe of winter ferments into manure. Where the plan of the buildings does not favour ſo much, a little more ſtone dike will form a ſquare on the moſt ſheltered ſide of the houſes; and ſheds, thatched with broom or heather, will give ſufficient ſhelter. I hope to hear that ſome of your readers have adopted this hint, by their acknowledging to you hereafter the benefit which they have derived. Hoping for pardon for ſo long a letter, I am, Sir, a ſincere wellwiſher to agricultural proſperity,

Ayrſhire, 18th March 1805. PENTAPHYLLON.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Value of Land in different Diſtricts.

SIR,

It is univerſally allowed, that your Magazine has been the medium through which much uſeful knowledge in rural affairs has been circulated; yet there is one very important leſſon hitherto much neglected by your correſpondents, namely, to ſhow the difference in the value of a farm, ariſing from the different ſtates it may be in at the time of entry, or with regard to its ſituation as to climate, markets, &c. &c. And, although the following parallel, drawn betwixt two farms of 240 acres each, both ſituated in the neighbourhood of Wigton, the one of a ſtrong clayey loam, the other one of our beſt turnip ſoils, and other two farms of the like qualities and extent, ſuppoſed to lye in the vicinity of Haddington, may not throw much light on that ſubject, yet it may be the means of turning the attention of ſome of your more enlightened correſpondents that way.

In the firſt place, let it be obſerved, that, on the lands in the vicinity of Wigton, a very few farms only excepted, the houſes are literally worth nothing. Were a proper ſyſtem of farming adopted, farms of the above ſize would require 600l. each, upon an average, to be expended on that article, to put them upon the ſame footing with ſimilar farms ſituated in the neighbourhood of Haddington.

Haddington. Taking this at 7½ *per cent.*, which is the intereſt commonly charged by the proprietors in this county when they allow money for that purpoſe (which, indeed, is ſeldom the caſe), it amounts to 45l. yearly; and if ſuch permanent improvements are not made by the proprietor, as ought always to be the caſe, they muſt be executed by the tenant, which is ſtill worſe.

To begin with the farm of ſtrong clayey loam, let us ſuppoſe it is managed according to what is commonly called the ſix courſe ſhift, viz. 1ſt, Fallow; 2d, Wheat; 3d, Clover; 4th, Oats; 5th, Beans and Potatoes; 6th, Wheat; and that, allowing 24 acres to remain in permanent paſture, there will be 36 acres in each of theſe diviſions. Now, in Eaſt Lothian, farms of this deſcription are, generally ſpeaking, in ſuch a ſituation that a farmer could begin this rotation at the very firſt of his leaſe, whereas ſimilar lands in the vicinity of Wigton are in ſuch a ſtate that it would be ſix or ſeven years before he could have them in that caſe. This may be taken at 1l. per acre yearly of drawback for the firſt three years of a leaſe, 10s. per ditto for the fourth and fifth, and 5s. per ditto for the ſixth year. This makes 1020l. of drawback in whole, which, at 10 *per cent.*, makes 102l. yearly. This, I am perſuaded, from what experience I have had that way, will not be too high rated.

Again, it is univerſally allowed, that the climate in Eaſt Lothian is much drier, and every way better adapted both for the cultivation of the ſoil, and alſo for the advancing and bringing to perfection the different corns growing thereon. Now, it is well known to every perſon, in the leaſt acquainted with the management of ſtrong clay ſoils, that it is only whilſt theſe lands are tolerably dry, that they can be ploughed, harrowed, or carted upon; from hence it evidently follows, that the wetter the climate, the more ſtrength both of men and horſes the farmer will require, in order that he may be able to improve the favourable ſeaſon as it comes. The difference in this reſpect, I ſhould ſuppoſe, cannot be taken at leſs than a man and a pair of horſes, or 60l. yearly. Now, again, it is certainly not unreaſonable to ſuppoſe, that lands of this deſcription, in this county, would yield one ſixth part more produce, did they enjoy the Eaſt Lothian climate: this will appear abundantly evident, when it is conſidered what a vaſt difference of produce the ſame field will yield in a good ſeaſon more than in a bad one, (although the field may be equally as well prepared for the ſeed in both ſeaſons, as circumſtances will admit of), amounting often to one half, if not more. Again, in this county, our grain has all to be ſhipped to the Clyde and Engliſh markets; whereas, in Haddington, there is always a ready quick market for the grain in its

its neighbourhood. However, in the following calculation, I will allow our Clyde and Engliſh markets to be as good as the Haddington market; which I much queſtion, eſpecially when it is conſidered that they are often knocked down by the vaſt quantities of grain poured into them from the Iriſh ports.

Firſt, then, let us begin with an acre of wheat. Suppoſe an acre of that grain, upon an average, in this county, will yield thirty Wincheſter buſhels, excluſive of ſeed, and our far-end price to be 7s. 6d. per buſhel, this would make 11l. 5s. per acre. Deduct from this, firſt, 6 *per cent.* for the merchant's profit here, which certainly, when intereſt of money, poſtage of letters, and other neceſſary expences are included, may be thought moderate. For freight and port charges, 5d. per buſhel, or $5\frac{1}{2}$ *per cent.* nearly. Inſurance from total loſs at ſea, 1 *per cent.*; for, although the grain is ſeldom totally loſt at ſea, yet it is often much damaged, by being heated and wet; and even if it arrive ſafe at market, it will not ſell ſo high after being ſhipped and unſhipped, as it would do were it taken immediately from the barn to the market. All theſe together cannot be taken at leſs than 6d. per buſhel, or 7 *per cent.* nearly. Now, in Eaſt Lothian, the grain is allowed to be much ſuperior to ours in quality, undoubtedly, in a great meaſure, ariſing from the advantage of climate. This difference I ſhall take at $6\frac{1}{2}$ *per cent.*; add to this 4 *per cent.*, as commiſſion to the grain merchant at the far-end market. Theſe ſums put together will make 30 *per cent.*, or 3l. 7s. 6d. per acre of difference for every acre of wheat. Again, upon an acre of beans, there will be 2l. 5s. of difference, taking the produce to be the ſame per acre, and the Haddington price 4s. 6d. per buſhel, and calculating the ſame way. As to oats, the difference in the market price is not worth mentioning, as there will be little of this article to diſpoſe of, the greateſt part thereof being conſumed by the farm ſervants and horſes: however, the one-ſixth extra produce muſt not be overlooked. Laſtly, I am credibly informed, that lands of this deſcription, in the vicinity of Haddington, are for the moſt part all laid out in moderately broad ſtraight ridges; whereas, in the vicinity of Wigton, they are almoſt all very high, broad, and irregular, running in every direction in the ſame field, and not unfrequently meeting in points in the middle of the field. This impedes the operation of huſbandry very much; and would at leaſt oblige the farmer to have a man and a pair of horſes, over and above what would be requiſite were the lands laid out in a regular way: this, with 10l. additional expences in harveſt, may be reckoned at leaſt at 70l. yearly. But ſome of your correſpondents

ſpondents will be ready to ſay, why be at ſo great an yearly expence?—let the lands be levelled and ſtraighted. This is certainly a very proper advice to a proprietor; but, from what little experience I have in that matter, theſe lands could not be levelled under an expence of at leaſt 50s. per acre; and that only when they were under a ſummer-fallow; ſo that, if a tenant were to attempt it, it would be ſix or ſeven years before he could get over his farm, and, undoubtedly, the ſucceeding crops would be more precarious for ſome years afterwards; and would be a very unprofitable undertaking for a tenant, except he had a very long leaſe indeed. Let us ſee, then, at one view, what theſe ſums will make when put together:

To yearly rent for houſes - -	L. 45	0	0
To the different ſtates of the farm at the time of entry	102	0	0
To extra work ariſing from wetneſs of climate -	60	0	0
To one-ſixth part extra produce per acre, 72 acres wheat will make 432 buſhels, at 7s. 6d. per buſhel -	162	0	0
To one-ſixth part extra produce per acre, 30 acres beans will make 180 do. at 4s. 6d. per do. -	40	10	0
To one-ſixth part extra produce per acre, 36 acres oats will make 288 do. at 3s. per do. - -	43	4	0
To 72 acres of wheat, at 3l. 7s. 6d. per acre, ariſing from difference of market - -	243	0	0
To 30 acres of beans, at 2l. 5s. per acre, ariſing from difference of market - -	67	10	0
To extra work ariſing from the irregularity of the ridges - - -	70	0	0
Total	L. 833	4	0

From this, it would appear that a farm of 240 acres of ſtrong clayey loam in this neighbourhood, if it were in the ſame ſtate at entry, and enjoyed the Haddington climate and market, would be worth 833l. 4s. of yearly rent more than what it is worth in its preſent ſituation, or 3l. 9s. per acre.

Again, in drawing the compariſon betwixt the turnip ſoil farms, I do not ſuppoſe any of our lands of that deſcription are rich enough for the above rotation. I ſhall ſuppoſe they are managed according to what is called the four courſe ſhift, viz. *1ſt*, Turnips; *2d*, Barley; *3d*, Clover; *4th*, Oats; and by allowing 40 acres to remain in permanent paſture, there will be 50 acres in each of theſe diviſions; and, taking the produce of barley and oats to be 40 buſhels per acre, excluſive of ſeed, the table will run as follows:

To

To yearly rent for houſes - - -	L.	45	0 0
To the different ſtates of the farm at the time of entry		80	0 0
To one-ſixth part extra produce per acre, { 50 acres barley will make 400 buſhels, at 3s. 6d. per buſhel -		70	0 0
To one-ſixth part extra produce per acre, { 50 acres oats will make 400 do. at 3s. per do. -		60	0 0
To 50 acres barley at 2l. 2s. per acre, ariſing from difference of market - - -		105	0 0
To 30 do. oats (the other 20 ſuppoſed to be conſumed at home), at 1l. 16s. per acre, ariſing from difference of market - - -		54	0 0
To 50 acres turnips, at 2l. per acre, ariſing from the want of market both for turnips and fat cattle		100	0 0
Total	L.	514	0 0

Hence it appears, that a farm of 240 acres of our beſt turnip ſoil would be worth 514l. of yearly rent more, if it were in the ſame ſtate at entry, and were in the ſame ſituation as to market and climate, &c. or 2l. 2s. 10d. per acre, as the lands of this deſcription in the vicinity of Haddington; and that our clay lands would be as dear at 2l. per acre, as lands of the ſame deſcription would be in the vicinity of Haddington at 5l. 9s. per acre, although apparently of the ſame quality; and our turnip land at 1l. 1s. as dear as theirs of the ſame quality at 3l. 3s. 10d. It would alſo appear that a farmer entering upon a clay farm in the vicinity of Wigton, would require 1020l. (if he had houſes to build at his own expence 1620l.) of capital more than what would be neceſſary upon his entering a farm of the ſame deſcription near Haddington; and upon a turnip farm 800l.; and if he had houſes to build 1400l. This undoubtedly leſſens the value of land here, as it may be received as an axiom, that every thing that leſſens the competition among the buyers alſo lowers the price of any article. Strangers, from Eaſt Lothian and other parts, have thought our rents very low; yet it is obvious, that lands are letting as high, if not higher, here, than in any part of Scotland, taking theſe things into conſideration. The generality of farmers in Galloway maintain, with much juſtice, that the lands here pay beſt whilſt they are in paſture (our markets for young cattle of our own breed being as high as any in Scotland); for it appears evident that land which, under the above ſyſtems, would give a fair rent in the vicinity of Haddington, would here barely pay the expence of labour. And although our ſyſtem of farming is apt to be treated with ridicule by ſome of your Eaſt Lothian

farmers who have viſited us; yet, with the exception of a few rich farms here and there, no ſyſtem of aration would enable us to pay ſo much rent upon our light ſoils as we actually do, although no doubt great improvements might be made in our ſyſtem without going to the expenſive ſyſtems adopted by Eaſt Lothian farmers. Here follow the fiar prices of corn for the county of Wigton for crop 1803; and alſo an account of the whole grain bought by one of our principal merchants, from October 1803 to October 1804, with the average prices annexed; all ſhipped in the neighbourhood of Wigton; which, if compared with the Haddington prices for the ſame period, will, I am convinced, fully confirm what I have advanced as to the difference in the market price of grain in theſe two places.

Fiar Prices of Corn &c. for the County of Wigton for Crop 1803, *ſtruck Feb.* 14*th*, 1804.

	l.	s.	d.
Oat meal per boll of 280 lib. avoirdupois	1	12	0
Farm meal per boll	1	9	4
White corn per boll of 12 Winchester buſhels	1	6	0
Mixed corn per do. of do.	None.		
Grey corn per do. of do.	1	0	0
Beſt per do. of do.	1	10	0
Farm bear per do. of do.	1	8	0
Malt per do. of do.	3	6	0
Barley per do. of do.	1	15	0
Peas and beans per quarter of 8 Winchester buſhels	1	14	0
Wheat per do. of do.	2	0	0

An Account of the whole Grain bought, with the Prices annexed, by a principal Merchant in the Vicinity of Wigton; from October 1803 *to October* 1804.

	Bolls.	l.	s.	d.
White oats per boll of 12 Winchester buſhels	1803	1	3	9½
Potato oats per do. of do.	546	1	8	5½
Bear or bigg per do. of do.	365	1	5	1
Barley per do. of do.	47	1	7	3½
	Qrs.			
Wheat per quarter of 8 Winchester buſhels	418	2	0	4

I ſhall only remark, that there is no ſuch kinds of grain to be found in this county as mixed corn, grey corn, farm bear, or farm meal, although always particularly mentioned in ſtriking the fiar prices; but for what reaſon I do not know. I am, yours, &c.

Wigton, 12th December 1804. A GALLOWAY FARMER.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Thoughts on various Subjects of Rural Economy.

SIR,

I MENTIONED laſt year, Vol. V. p. 196, that I had ſown, in the preceding autumn, about three acres with rape ſeed, as ſpring

ſeed

feed for ſheep, and am ſorry to ſay that the crop turned out of little value. The ground had previouſly been in wheat, after potatoes, and was in good condition. I ploughed it about the middle of September, the ſeed was immediately ſown, and the crop was carefully preſerved till the middle of April, when five ſcore of ſheep were put upon it. They only got a ſcanty feeding during three days, when the whole was eaten up; in eight days afterwards they were put upon it again, but the new growth had made ſo little progreſs, that the ſhaken wheat afforded much more benefit than the rape plants; the ſheep were fonder of the former than the latter, and it grew faſter after being eaten down; which confirms an opinion I have long held, that early ſown rye produces more ſpring feed than any crop which we are acquainted with; at the ſame time, I am far from thinking that a benefit will even be derived from it, adequate to the expence of ſeed and labour, independent of the loſs and inconvenience ſuſtained in working the ſubſequent crop. In this northern climate, we are not to expect a ſufficient ſupply of green food, in the ſpring months, for cattle and ſheep, from any crop that has not been well advanced before the autumn; and people muſt be reconciled to beſtow both labour and ground, before ample ſupplies can be furniſhed. The white, red, and green topped turnips can, in moſt ſeaſons, be preſerved till the end of March; and Swediſh turnip, or Ruta Baga, may continue the ſupply ſix weeks longer, by which time rye graſs and clover, if only ſown thick enough, and on well prepared land, will furniſh a full bite of the moſt nouriſhing food. Laying light in ſummer, does not a little add to winter's maintenance, and to a forward bite in ſpring, without leſſening the grazier's profit. Fattening cattle come on but ſlowly when the paſture is kept bare, when compared with their progreſs when a full bite is given; and it is ſurpriſing how much more benefit is derived from graſs before the end of June than in the ſucceeding months.

However beneficial the crops already mentioned may be for keeping ſtock in good condition at all times, yet, under different circumſtances, other articles might be cultivated with equal, if not more advantage, viz. tares, white yams, cabbages, and curled kail; all of which are of eminent advantage to the ſtock farmer. Tares, on all arable farms, are found an excellent article of food, and are of particular uſe when graſs fails, or gets to an age which renders it unfit for being uſed as green food. In high latitudes, and on thin ſoils, tares are ſtill more beneficial, conſidering the little nouriſhment afforded by graſs in ſuch ſituations. In late diſtricts, it is well known that tares admit of a cutting almoſt as ſoon as clover crops; and, as they may be

ſown at different periods, a more regular ſupply of green food may be got from them in the ſummer ſeaſon, than from clover or other artificial graſſes.

In many parts of the country yams are more to be depended upon for ſpring food than turnips; they afford more ſuſtenance from a given quantity of ground, can be houſed and ready at hand for uſe when turnips cannot be brought home, or, at leaſt, when their removal is accompliſhed with much injury to the ground on which they are produced. Cabbages are an excellent article in the end of autumn, or beginning of winter. I have often had my cows ſupported with the under blades for ſeven or eight weeks at theſe periods; and if carefully taken off, no injury, but rather a benefit, will be received. Cabbages will continue, in moſt ſeaſons, freſh and uninjured till the middle of January, and, when ſplit into pieces and boiled among chaff, prove an excellent feed. Green kail, from March to May, are of great ſervice, and yield a weightier crop, on good ſoils, than almoſt any other leguminous root. They will often admit of a ſecond cutting; and a part of the ſtem, ſplit, improves boiled meat for cows very much.

I am well aware, that not a few of your readers will conſider theſe to be but trifling objects; yet be aſſured, that, in the way a conſiderable portion of this county is occupied and farmed, a proper attention to them muſt prove highly beneficial to the generality of our profeſſion. With tares and cabbages in autumn, turnips in winter, yams and green kail in ſpring, and a handful of clover hay, every beaſt reared or kept may be made of double value, and a great increaſe of manure procured. According to our preſent ſyſtem, cattle generally go out in the morning, during the winter and ſpring months, and perambulate the paſtures in ſearch of food, though it rarely happens that they procure as much nouriſhment as would be got from a ſingle pound of hay. It may not, however, be unneceſſary to remark, that the green crops which I have recommended for winter and ſpring conſumption, cannot be raiſed with advantage, unleſs the ground be well cultivated and dunged. I have often found that one acre, ſufficiently dunged, and properly wrought, will produce nearly as many kail, cabbages, yams, or potatoes, as two will do when but half dunged, and ſparingly wrought. In ſhort, it is a waſte of labour, and a miſoccupying of the ground, to graſp at a greater breadth of theſe crops than can be ſubſtantially manured. Indeed, to attempt the raiſing of a greater quantity of any crop, than conſiſtent with the circumſtances under which the farmer is placed, militates againſt every principle of

of good huſbandry, and rarely tends to promote the intereſt of the huſbandman.

A few acres in yams, even in the moſt fertile diſtricts, will prove a more beneficial article in feeding work-horſes, eſpecially in the ſpring months, than what can be produced from the ſame quantity of ground, if employed in the raiſing of any other crop. It excites ſurpriſe, as well as regret, when travelling the country, to obſerve ſo many unproductive fields of new ſown graſs land; and I am inclined to believe, that this circumſtance proceeds, in a great meaſure, from the ſcanty quantity of ſeed uſed in ſowing of ſuch fields. Perhaps a greater quantity of ſeed, and a better preparation, might, in many caſes, render the ſucceeding crop of graſs of double value; at leaſt, I am ſure that, if paſture is intended, thick ſowing is highly beneficial. No dependence ſhould be placed upon any land feeding itſelf; though I know ſome people, who poſſeſs ſoils on which white clover may be conſidered as naturalized, are apt to hold this circumſtance in view when the artificial graſſes are depoſited. A full quantity of rye graſs and rib graſs ſhould alſo be ſown, as they are not expenſive, and thrive better on new lands than other graſſes. A general prejudice ſeems to be entertained againſt rye graſs, particularly againſt ſowing it thick, on account of the ſuppoſed injury done thereby to clover; but I never found, in the courſe of my experience, any bad conſequences from giving the ground a much greater quantity than what is generally beſtowed. Perennial rye graſs ſprings early, continues to grow long in the autumn, and ſtands froſt better than any other graſs.

Your correſpondent, *Arator junior*, Vol. V. p. 425. ſeems deſirous of withholding the uſual allowance of ſeed given to ground, but I ſuſpect that very bad conſequences would follow the general adoption of his ſentiment. His obſervations with reſpect to the careleſs manner in which ſeed work is generally executed, are much better founded; becauſe, where one part of the ground is ſown too thick, and another too thin, a conſiderable loſs muſt neceſſarily be ſuſtained; yet, till we arrive at greater perfection in the art of ſowing, or contrive ſome mode by which the ſeed will be depoſited at equal depths, a full allowance of ſeed muſt be required in the broad-caſt way, if a full crop is expected, unleſs the ground be in a very ſuperior ſtate of cultivation. I remember, many years ago, when the practice of ſowing graſs ſeeds was in its infancy, Quaker Miller, a firſt-rate ſeed merchant, and a very ſagacious man, when applied to by his cuſtomers, with regard to the quantity of ſeed they ought to give to an acre, never failed to tell them, that if they ſowed ſparingly they would reap ſparingly; an aphoriſm which no

farmer ſhould loſe ſight of. A boll of oats to the acre, is too little ſeed for the land of this country in general, and ſo is three firlots of barley. Laſt harveſt, from four acres ſown with forty pecks of potatoe oats, I reaped ſomething leſs than forty bolls, whereas five acres of the ſame field, ſown with ſix bolls of *Church's oats*, produced ſixty bolls. The firſt was evidently too thin; and not a doubt could be entertained, but that if more ſeed had been ſown, the produce would have been conſiderably increaſed. Indeed, ſo far as has come under my obſervation, every attempt to ſave ſeed, like thoſe made to ſave labour, is ultimately attended with a degree of loſs in direct proportion to the length it is carried.

We have heard a good deal of what has been gained in England from a ſaving of ſeed from drilling and dibbling. Some years ago I travelled through that country, and narrowly examined the crops on a pretty wide circuit, immediately before the the harveſt ſeaſon, and in general found the wheats remarkably thin, eſpecially in the counties of Suffolk and Eſſex, where drilling and dibbling of wheat prevailed. The bean crops were the reverſe, pretty tall, and the ground cloſe covered in. They ſeemed to be commonly drilled from twelve to fifteen inches aſunder, and not very fruitful; which laſt circumſtance I aſcribed to the plants being deprived of ſun and air, two requiſites abſolutely neceſſary for rendering a crop productive. One great advantage that beans drilled have over thoſe broad-caſt is, that as moſt of the fruit or grain is ſtationed near the under part of the ſtem, the influence of the atmoſphere is obtained by means of the intervals. This is not neceſſary with wheat, barley, or oats, the grain of which plants, being ſituated at the top of the ſtalk, will thrive and come to maturity, even though the ground is fully covered. I have always found that a few ſtems of theſe grains, when ſtanding by themſelves, never arrive at the ſame degree of perfection or productiveneſs, as when a greater number ſtand in a more compact poſition. This is not the caſe with beans, for a ſtalk is never more productive than when ſtanding by itſelf. I am, with beſt wiſhes for the ſucceſs of your work, Sir, your obedient ſervant,

Mid Lothian, 20th Dec. 1804. T. S. S.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Letter, accompanying Extracts from Fourcroy on the Philosophy of Vegetation.

SIR,

1. IN agriculture, as in all arts and sciences, there are a series of principles upon which a right intelligence of the numerous observable facts may be rationally explained; and which, connecting these facts into a regular system, forcibly impress them on the memory. This series of principles may very properly be called the theory of the art or science. As in mechanics, all principles depend upon mathematics; so in agriculture, the principles upon which plants are nourished, depend altogether on chemistry; which, in its modern highly improved state, leads, with almost positive certainty, to a knowledge of the nature of soils, and their amelioration in various ways; and the effects of manures, so as to facilitate the growth of vegetables, and to increase the quantity of their useful productions.

2. Until some person, properly qualified by intimate knowledge of chemistry, and great agricultural experience, shall favour the world with a system of the principles of agriculture, or its theory; I have, to serve my brethren in the mean time, extracted from the system of chemical knowledge of the celebrated Fourcroy of Paris, what may very properly be considered as an abstract or epitome of all that is at present known to science, respecting the theory or philosophy of agriculture. To this I have given the name of *philosophy of vegetation.*

3. As the subject in his book forms part of a general system of chemistry, I have not confined myself strictly to his arrangement; having varied that, to suit it for the purpose now meant. Indeed, being a subject purely chemical, it is not to be understood properly, without some previous knowledge of the language and principles of modern chemistry; an abstract of which would trespass too much on the bounds of the Farmer's Magazine. Yet it seems absolutely necessary to premise a slight view of some part of the chemical doctrines, to render the subject at all intelligible.

4. Except for this introductory matter, it is to be noticed that I am only accountable for fidelity of version; and therefore do not hold myself bound, in any degree, to enter into controversy on the subject. The chemical principles, upon which the whole facts and reasonings are grounded, will, I am convinced, be found perfectly consonant with those now universally adopted by philosophers. A great number of chemical terms will necessarily occur in the series of this communication. These must be attended with

with unavoidable inconveniency and difficulty to many readers; but every ſcience or art muſt of courſe ſpeak its own appropriate language.

5. All matter, as a ſubject of human knowledge, is generally arranged under three grand diviſions, Mineral, Vegetable, and Animal, which have been termed the three kingdoms in the empire of nature. To theſe may be added, Heat, as the univerſal vivifying principle; and the Atmoſphere, which is equally neceſſary to life, both animal and vegetable.

6. The nature and origin of heat are unknown, though many of its effects are familiar to all. Heat, as it increaſes in bodies, univerſally augments their bulk. Heat applied to many ſolid ſubſtances, moſt likely to all, in ſufficient intenſity, and in proper circumſtances, firſt renders them liquid; and, by ſtill farther addition, reduces them to vapour. In theſe two alterations of the ſtate or condition of matter, it has been decidedly proved, that a very conſiderable portion of the cauſe or matter of heat, now named caloric, enters into compoſition with the matters ſo acted upon, forming part of the newly produced ſubſtance, and without increaſing farther its warmth or temperature. Thus all liquified ſolids, conſiſt of the original ſolid combined with one doſe of caloric, ſo long as the temperature is ſufficiently high; and all aëriform gaſes, produced from ſolids or liquids, conſiſt of the original ſolid or liquid matters, combined with a ſtill larger doſe of caloric. Hence, by analogy, it is preſumed, that all liquids and aëriform fluids or gaſes whatever, conſiſt of ſome originally ſolid matter combined with caloric; and that if caloric could be ſufficiently abſtracted, theſe would all be reducible to ſolids. Light certainly acts a very material part, along with heat, reſpecting the chemical changes which ſubſtances undergo; but it would lead to too vaſt and intricate a field of diſcuſſion, to attempt here to explain its nature and operation. Some notices on this ſubject will occur in the ſequel.

7. Upon theſe principles, the atmoſphere, or the air we breathe, muſt be compoſed of ſome naturally ſolid portion or portions, combined with caloric, and inſeparable from it, in any degree of known, or even conceivable cold. Accordingly, we find that air, in many natural operations and artificial proceſſes, actually combines with ſolid or liquid matters, ſo as to form an efficient part of them, even greatly augmenting their weight; and in a degree of compreſſion hardly conceivable; unleſs upon the foregoing principles, of air conſiſting of a ſolid baſis, rendered aëriformly elaſtic by combination with caloric. And we find, in every inſtance where the air enters into ſuch ſolid or liquid combinations with other bodies, a great quantity of its combined

caloric

caloric is ſet free, ſo as to produce warmth or temperature. Whenever that combination is ſufficiently rapid, the temperature of the ſubſtance, with which the air is entering into combination, is ſo highly increaſed as to be ignited, and combuſtion or inflammation is produced. In fact, combuſtion is nothing more than the actual and rapid combination of one part of the air with the burning body. The ſmoke produced during combuſtion, proceeds from part of the burning body being raiſed into viſible vapour by the high temperature; and the flame is occaſioned by the ignition or burning of that ſmoke, entering likewiſe into rapid combination with the air, and giving out caloric and light.

8. Though the atmoſphere, or the air we breathe, ſeems one homogeneous fluid, it is yet certainly compoſed of two very different gaſes, only mixed together, not chemically combined. One of theſe, in largeſt quantity, named azotic gas, is by itſelf incapable of ſupporting flame; and if animals breathe in it, they inſtantly die. The other, named oxygen gas, ſupports flame much more intenſely than atmoſpheric air; is capable by itſelf of ſupporting animal life, by breathing for a longer time, in the ſame quantity, than atmoſpheric air; and enters into a vaſt number of combinations with various bodies, either by obvious or inſenſible combuſtion. The atmoſphere likewiſe contains a ſmall portion of carbonic acid gas, to be afterwards noticed; and ſmall portions of every evaporable ſubſtance, with a large portion of aqueous vapour, diffuſed, or in ſolution.

9. Water likewiſe, though apparently a homogeneous ſimple liquid, is actually a compound body, conſiſting of oxygen, or the ſolid baſis of oxygen gas, combined chemically with hydrogen, which is the ſolid baſis of another gas, long known by the name of inflammable air.

10. The combination of hydrogen with azot, or the ſolid baſis of azotic gas, forms ammonia, or what is commonly called volatile alkali.

11. There are a number of combuſtible bodies, which, by combination with oxygen, are changed into acids. Thus, ſulphur combined with oxygen forms ſulphuric acid, formerly called oil of vitriol. Phoſphorus, by the ſame combination, is changed into phoſphoric acid. Charcoal, or rather its pure baſis or element, named carbon, by the ſame combination, forms carbonic acid, which, in its ſtate of gas, that is, farther combined with caloric, forms carbonic acid gas, formerly called fixed air. Azot, in combination with oxygen, forms nitric acid. Beſides theſe enumerated combuſtible bodies, there are a great number of metals; all of which, in one way or other, are ſuſceptible of entering into combination with oxygen, b- a p- eſs

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ſimilar to combuſtion; either in ſufficient quantity to be changed into real acids, or in a ſmaller doſe, by which they are changed into oxyds.

12. Hydrogen gas is capable of diſſolving a portion of carbon, by which carbonated hydrogen gas is formed. By diſſolving a portion of ſulphur, ſulphurated hydrogen gas is formed; and, by diſſolving a portion of phoſphorus, phoſphorated hydrogen gas.

13. Beſides the above mentioned acids, there are a number of others, either found naturally in vegetables, or produced by fermentation, or by artificial chemical means, the baſes of which are found to conſiſt of compounds in various proportions of carbon and hydrogen, acidified or changed into acids, by farther combination with oxygen, the univerſal acidifier.

14. Beſides the acid ſtate of combination with oxygen, all the acidifiable baſes above mentioned are found ſuſceptible, both ſingly, and compounded in various proportions, of entering into combination with oxygen in a doſe leſs than is neceſſary to convert them into acids. In this ſtate they are termed oxyds. Theſe are found, generally ſpeaking, to conſtitute the elements of vegetable ſubſtances in a natural or growing ſtate; which conſiſt for the moſt part of hydro-carbonous oxyds, variouſly compounded, and modified by their organic ſtructure. In ſome of theſe, azot enters into the compoſition, and various other matters to be hereafter mentioned.

15. From all plants may be extracted a peculiar ſaline ſubſtance, called vegetable fixed alkali, which modern chemiſtry denominates by the ſingle word *potas*. Potaſhes are compoſed of this, combined partly with carbonic acid, forming a neutral ſalt called carbonate of potas, together with a mixture of ſome carbon or charcoal, and ſuch earthy matters as may have exiſted in the original plant; and ſome minute portion of metals, ſuch as iron and manganeſe, which likewiſe exiſted in the original ſubſtance of the plant. Some plants, chiefly ſuch as grow on the ſea-ſhore and ſalt marſhes, and ſea-weed, produce a portion of another ſalt, formerly called mineral fixed alkali, now *ſoda*, combined partly with carbonic acid, into carbonate of ſoda, and mixed with ſimilar foreign ſubſtances.

16. In the native juices of plants, theſe two alkalis are ſometimes found combined with other vegetable acids, forming neutral ſalts of various names and natures, which need not be here enumerated.

17. The ground upon which plants grow, and from whence they derive their chief nouriſhment, by means of their roots, is a heterogeneous maſs or aſſemblage of various earthy matters, ſtones,

ſtones, ſand and gravel, penetrated by water, and mixed with the decayed and decaying parts of dead animals and vegetables, and ſome metallic oxyds, and containing a variety of the before enumerated compound oxyds, combuſtible or acidifiable bodies, and neutral ſalts. Hence may readily be ſeen how the earth ſhould ſupply nouriſhment to plants, from the decay of which it has acquired the elements or principles of that nouriſhment.

18. In the ground upon which plants grow, beſides the mixture of decayed and decaying animal and vegetable bodies juſt mentioned, chemiſtry detects the three following ſimple earths, as forming the chief maſs of its ſubſtance: 1. Alumine, or the pure earth of clay: 2. Silex, or the pure earth of flint and ſand: 3. Calx, or the pure earth of lime. A fourth, magneſia, is found in ſome abundance, but not nearly in ſuch quantity as theſe; and a fifth, barytes, is ſometimes found in earth and ſtones.

19. Were theſe earths all pure in ſoils, however compounded among themſelves, the ground, or the ſoil in which plants grow, would always be uniformly white, like pure ſand, or pulverized quartz. But theſe earths are uſually leſs or more contaminated with metals, or their oxyds, and mixed with the carbonaceous remains of decayed vegetables, from which laſt the black or dark colour of ſoils is principally occaſioned; as their red and yellow tinges are chiefly produced by oxyd of iron, in different ſtates of oxydation or combination with carbonic acid.

20. Of theſe earths, magneſia, alumine, calx, magneſia, and barytes, are ſuſceptible of entering into combination with carbonic acid, forming carbonats, ſoluble leſs or more in water, and thus capable of being abſorbed by the roots of plants. Vinegar likewiſe, which is found in the decaying vegetable ſubſtances, may ſerve to the ſame end, forming acetites. The metallic oxyds, likewiſe, are either themſelves ſoluble to a certain degree in water, or become ſo by combination with carbonic acid. Even ſilex is either ſoluble in an immenſe proportion of water, or becomes ſo by combining with a portion of either of the alkalis. Carbon, and its combination with hydrogen, and the oxyds or acids of the other combuſtibles, azot, ſulphur, and phoſphorus, are all leſs or more ſoluble in water. Thus we ſee how the water which percolates the ſoil, and is abſorbed by the roots of plants, muſt form a heterogeneous ſolution of an immenſe variety of articles, and, by abſorption through their roots, furniſh plants with every thing neceſſary for their nouriſhment. Many of theſe may even be diffuſed in water, in ſuch minute ſubdiviſions, as to be ſuſceptible of entering the capillary abſorbent veſſels of the roots of plants. Thus vegetation,

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and the decay of vegetables and animals, form a perpetually moving circle of life produced by diſſolution, and deſtruction producing life; a conſtantly active chemical elaboratory, in which the decay of organized bodies decompounds the ſubſtances of former organization; which new organization ſucks up into itſelf, and recompounds into the neceſſary juices and ſolids, for preſerving its own life, and producing its growth and increaſe.

21. Animal ſubſtance, which is moſtly produced by the organization of the living animals, operating ſimilar decompoſition of vegetable ſubſtance, and ſubſequent recompoſition, into a ſomewhat different ſeries of compounds, but compoſed of the ſame ultimate elements, contributes likewiſe, by its decay, to the formation of that heterogeneous maſs mixed with the ſoil, termed *mould*; of which hereafter.

22. I do not think it neceſſary or proper to enter, in this place, upon any inveſtigation of the different kinds of ſoils as they occur on land, which would render this introductory eſſay much too prolix and complicated. Theſe chiefly depend upon the proportions of clay, lime, and ſand, or ſtones of various kinds in their compoſition; and on the quantity and quality of mould mixed with them; on their depth, and on the nature of their ſubſoils. I hope I have, as diſtinctly as is conſiſtent with brevity, and as fully as the limits would admit, explained the chemical principles in general, and thoſe connected with ſoils and vegetable ſubſtance, ſo as ſufficiently to render intelligible what I propoſe to tranſlate from Fourcroy, in which three chemical principles will be farther developed as we proceed.

23. Were I to have tranſlated the whole articles in the ſyſtem of Fourcroy, which tend directly or indirectly to the ſubject, I ſhould have furniſhed a large volume. All I mean, is to ſelect what are beſt calculated to throw light upon the ſcientific principles of vegetation; and in ſuch an arrangement, as ſeems beſt calculated for that end. What follows is from Fourcroy, except a few notes occaſionally ſubjoined to the text.

Berwickſhire. R. r. r.

NOTE BY THE CONDUCTOR.

We are in duty bound to expreſs the great obligations we are under to the ingenious and reſpectable gentleman who has ſo kindly favoured us with the above communication, and the accompanying extracts from Fourcroy on the Philoſophy of Vegetation. Theſe, added to former favours, entitle him to our utmoſt gratitude. Such a correſpondent, indeed, is a tower of ſtrength to our work; and we will at all times be proud to receive his intereſting and inſtructive communications. N.

FOURCROY

FOURCROY ON THE PHILOSOPHY OF VEGETATION.

PART I.

Of the Putrid Fermentation of Vegetables.

1. PUTREFACTION is the last species of fermentation which vegetable substances undergo, and which operates their intire decomposition. No part of vegetables is exempted from this process; yet almost all may be preserved from it, by depriving them of water, and of the access of air and heat. Some ancient chemists, particularly Beccher, formed a kind of comparison between the processes of putrefaction and combustion. This observation was certainly well founded, though not susceptible of direct proof in those days, and has been fully confirmed by the discoveries of modern chemistry.

2. Several circumstances are requisite to admit of putrefaction in vegetable substances. Their structure requires to be softened by means of water. All vegetable matters, in a state of dryness, preserve without change; whereas all that are sufficiently moist, corrupt even the hardest woods, the driest ropes, and the firmest coriaceous stems. The contact of air contributes greatly to the commencement and continuance of the process of corruption. A number of instances may be produced of flowers and fruits preserved fresh and healthy in vacuo, and in places well defended from all access of air. It is not necessary for the putrefaction of vegetables that they be kept in a high temperature. From 50° to 60° of Fahrenheit is quite sufficient; yet a higher temperature, instead of injuring, hastens the process, providing that it be not sufficient to dry them thoroughly. The state of dryness produced by means of an oven, is the most completely antiseptic process known for vegetables. The process of spontaneous putrefaction is singularly encouraged by gathering vegetable substances into heaps, which, however, must not be compressed, at least not forcibly.

4. All the conditions requisite for promoting putrefaction being united, this decomposition shows itself by alteration of colour and consistency in the various vegetable matters; their structure becomes weaker, and softens; their layers and fibres are raised and separated from each other; their soft and liquid parts swell up, and become covered with froth. Elastic fluids or gases pervade them in all parts, blow them up, tear them asunder, and escape. Their temperature augments considerably, and sometimes even produces inflammation. The disengaged gases at first have a slightly unpleasant odour, but become afterwards musty, disagreeable, fœtid, and slightly ammoniacal: These are principally composed of carbonated hydrogen, carbonic acid, and azotic gases. These recited phenomena diminish gradually, after contin ng

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longer or ſhorter, according to the conſiſtence or texture of the vegetable ſubſtances, which loſe a conſiderable portion of their bulk in conſequence of the extrication of the gaſes, and likewiſe by evaporation. When completed, there remains a reſidue, more or leſs abundant, of a blackiſh colour, containing only the more fixed materials which exiſted in the original compoſition of the vegetables, namely, the earths, the acids with which theſe are ſaturated, and part of the carbon of the vegetables.

4. In the circumſtances neceſſary for the putreſcence of vegetable ſubſtances in its phenomena, and in its products, both volatile and fixed, we readily diſcover the influence of numerous chemical attractions, which the materials or elements, entering into their original ſtructure or compoſition, exert mutually upon each other. The hydrogen unites with oxygen, and either eſcapes in form of water reduced to vapour by the heat, or in hydrogen gas uncombined with oxygen, carrying off part of the carbon in ſolution, forming carbonated hydrogen gas; while another part of the hydrogen combines with azot in ſuch vegetables as contain that ſubſtance, forming ammonia; a farther part of the hydrogen remains in the ſolid reſiduum, to which it communicates colour, and occaſions its remaining odour. The original carbon unites partly with the diſengaged hydrogen as already noticed, or unites with oxygen by a ſpecies of imperceptible combuſtion, and flies off in carbonic acid gas, while a portion remains in the reſiduum. The oxygen ſeparates in compoſition with one or other of theſe two above mentioned materials, forming binary compounds.

5. Among the fixed reſidues left by the putrid decompoſition of vegetables, we chiefly notice, as objects of utility, hemp, flax, or other ſimilar remains of watered fibrous plants analogous, rotten wood, muck, and mould.

§ I.—*Of ſteeping Hemp, Flax, &c.*

6. The effects produced by ſucceſſive action of water and air upon the fibres, originally glued together, of hemp, flax, broom, and other ſimilar plants having ſemiligneous ſtems, containing numerous fibres, is well known. They are ſteeped in water for ſome days, below the ſurface of which they are held down by means of ſtones. The mucous gluten and extractive matter, which held their fibres together, is diſſolved and decompoſed; the bark ſeparates from the internal woody ſtructure, of which the various layers and its fibres become eaſily ſeparable. This operation of watering is in ſome places named *retting*; probably a corruption for rotting.

7. By experience, running water is found preferable for this proceſs to ſtagnant, although moſt country people entertain the contrary

contrary prejudice. Inſtead of ſteeping in cold water, according to the ordinary proceſs, the effect may readily be produced by boiling in water with a ſmall addition of alkali. In the ordinary method, the ſteeping is accompanied by an inſupportable fetor, and a real putrid decompoſition. For which reaſon, I have here introduced this proceſs, as producing a kind of fibrous ſkeleton, ſeparated by putrid decompoſition from the other matters which ſurrounded theſe fibres in their natural ſtate. This decompoſition muſt be ſtopped in proper time; as it would otherwiſe attack the fibrous texture, and render it weak and brittle.

8. From theſe ſolid yet flexible fibres, thus ſeparated, are manufactured thoſe delicate light ſtuffs, unknown to the ancients, of which modern poliſhed nations form the veſtment worn next their ſkins. Linen, it is well known, poſſeſſes conſiderable ſtrength and durability: Yet, by cutting it in pieces, and grinding it to pulp, after having been macerated and partly putrefied * in water, it is formed into a paſte, which, diluted and ſuſpended in warm water, is moſt ingeniouſly formed into ſheets of paper, by means of fine wire ſieves. After drying, theſe ſheets are covered with a vegetable or animal glue, to admit of being written upon, without the ink ſinking or ſpreading.

§ II.—*Of Rotten Wood.*

9. Dead trees, corrupted in different ways, and called rotten wood, or *touch-wood*, is one of the moſt ſingular reſults of the putrid decompoſition of vegetables. The footſtalks of leaves, the woody ſupports of flowers and fruits, the ſmall ſpray, the ſlight ſtems of ſhrubs and dried graſs or herbs, changed ſomewhat into the nature of wood by drying; when collected on the ground, and heaped up along with fallen leaves upon moſſes, in hollow places where water collects; leſs or more covered or penetrated by the water, and having contact of air, ſpoil, decay, and decompoſe: They become brown or black, dividing or ſplitting off their cortical ſubſtance, in thin layers or filaments, and leave below a yelloviſh, browniſh, or whitiſh ſoft texture, without conſiſtency, having an odour of mouldineſs, and in a ſtate of decompoſition named rotten, or touch-wood. †

10. When expoſed to damp air, or in low ſituations, where

* This partial putrefaction of rags, previouſly to their being made into paper, is not now practiſed by Britiſh paper-makers.—*R. r. r.*

† A ſimilar ſpecies of decompoſition takes place in dunghills, when too dry and open. Inſtead of falling down into good, well rotted muck, they remain dry, whitiſh, and mouldy, or become what is uſually termed fire-fanged.—*R. r. r.*

the water cannot freely evaporate, blocks of ſolid timber, joiſts or planks, after ſome years, undergo this change. Hence, wooden fences in thick foreſts, and in cloſe, unventilated court-yards; ſhelves and other wooden articles in cellars; benches, and timber partitions in ground-floor rooms; and in ſhort, in every place where the air wants free circulation and is conſtantly loaded with humidity, become ſoft, ſplit open, give out a mouldy ſmell, loſe their ſolidity, and finally divide into white layers or filaments; which are pliable when damp, and pulverulent when dry.

11. Though all the phenomena which ſucceſſively occur, during this ſpontaneous decompoſition and deſtruction of timber, have neither been obſerved nor deſcribed with ſufficient care, ſtill ſome of them have been attended to, which are proper to be noticed in this place. It is known, that during the whole courſe of this proceſs, and almoſt to the end, the decompoſing timber is phoſphoreſcent, or ſufficiently luminous to produce a ſingular appearance in the dark. In this ſtate, it always exhales an odour ſimilar to the agarics and boleti, or puff-balls; which ſeem often to owe their production to the conſequence of this decompoſition of wood. It is known that various of the immediate materials or elements of vegetable ſubſtance, as the mucous, extractive, feculent, and oily matters, are gradually deſtroyed, and eſcape from the woody matter during this decompoſition: That theſe are either entirely loſt, or, if recovered afterwards, are in a very changed ſituation, not much attended to as yet, but which merits to be carefully examined.

12. When the laſt reſiduum of rotten wood is examined, beſides loſing its ſolidity and conſiſtence, it has loſt the greater portion of its original ſubſtance, and its ligneous property, and the greater part of its weight. Its combuſtibility is greatly diminiſhed; it burns weakly and ſlowly; gives out very little heat, and leaves very few aſhes: But theſe aſhes are remarkably ſaline; and ſeveral chemiſts have obſerved, that ſulphat of ſoda is found in them more abundantly than is uſually procured from vegetable ſubſtances. What has been hitherto diſcovered on this ſubject, ſhows that a careful inveſtigation of all the changes that take place in theſe ſpontaneous decompoſitions, may lead to important concluſions in the philoſophy of vegetation.

§ III.—*Of Muck.* *

13. Though, at firſt ſight, there may not ſeem in the ſlow decompoſition

* I have choſen this word, both to diſtinguiſh it from dung, the excrement of animals, and for the reaſons aſſigned in the text.—*R. T. S.*

decompoſition of herbaceous ſtalks and ſtraw of graminaceous plants, any thing eſſentially differing from that of ſolid, vegetable matters; yet the ſpecies of phenomena which theſe preſent, and the product which they afford under the name of *muck*, ſo important an object in agriculture, require ſome peculiar notice. I am not, however, to be underſtood, here, of that complex mixture of animal and vegetable materials called muck by agriculturiſts; that collection of materials of every kind which they heap together, along with the ſtraw which has ſerved as litter to animals, and which, impregnated with their dung and urine, furniſhes a manure ſo fertilizing to their grounds.

14. In this place, I confine myſelf merely to the remains of the ſtraw or ſtalks of all kinds of plants, which, moiſtened in ſuch manner as to admit the air to ſurround and penetrate them, heat, become coloured, divide, and exhale a fetid ſmell; giving out aqueous vapour, charged with carbonated hydrogen gas, and ſometimes a ſmall quantity of ammonia, which ſoften, melt down partly into a brown, ſtrong ſmelling liquid, highly conducive to vegetation, and which depoſits charcoal by gradual precipitation: Which finally reſolves its remanent ſolid part into a blackiſh, friable maſs, that at laſt becomes pulverulent, and is confounded with the earth, into which it gradually changes, from this ſtate of *mould* or vegetable earth; which we ſhall ſoon examine.

15. During this decompoſition, which renders theſe vegetable remains ſo ſerviceable for ameliorating, enriching, and manuring land, into which it is mixed by means of the plough, the original elements compoſing theſe vegetable ſubſtances react mutually upon each other: by means of a gradual fermentation, or imperceptible inteſtine movement, they unite again into a new order of compoſition from what ſubſiſted among them in the perfect vegetables. Part of theſe original ultimate elements, in their new order of compoſition, eſcape in vapour; part diſſolve into a thick liquid, named *muck-water*; part retain the ſolid form, after loſing the greater part of their texture and organization. All theſe elements, more ſimply combined than in the compounded form in which they exiſted formerly, tend gradually to reſtore to the atmoſphere and the ſoil, what had been borrowed from theſe during the living proceſſes of vegetation. And from this very decompoſition it is that muck ſerves ſo uſeful a purpoſe as manure, in ſupporting and encouraging vegetation, as will appear in the ſequel.

§ IV.—*Of Mould.*

16. The laſt ſtep in the ſlow putreſcent decompoſition of thoſe herbaceous ſtalks and ſtraws, the final ſtate of the muck which they produce, in which ſtate it is ſaid to be conſumed, is its reſolution into *mould*, or vegetable earth. The blackiſh viſcid pulverulent maſs, into which muck finally reſolves after its complete decompoſition, is ſo named, on account of its reſemblance to earth in form and appearance; and becauſe it thus adds layers to the ground, apparently augmenting its bulk and depth. This mould may, in ſome degree, be conſidered as an aſſemblage of the woody ſkeletons of the herbaceous ſtalks: But it muſt not, as formerly, be conſidered as only compoſed of the fixed materials or elements of which theſe ſtalks were originally formed.

17. The name formerly given to this ſubſtance, vegetable earth, only thus expreſſes its external appearance or phyſical properties. It muſt not be confounded with earth, ſtrictly ſo called; ſince earthy ſubſtances generally conſtitute only the ſmaller portion of materials of which mould is compoſed. The firſt analyſis of this ſubſtance, made ſeveral years ago by Giobert and Haſſenfratz, have proved it to contain oily matters, extractive ſubſtances, and charcoal containing a conſiderable quantity of hydrogen. Submitted to diſtillation, mould gives out liquids and elaſtic gaſes, both of which have conſiderable odour. Boiled in water, it communicates colour, taſte, and ſmell to that fluid. Heated with contact of air, it takes fire, and even ſometimes burns with conſiderable rapidity. By more attentive analyſis, recent mould gives acetites and benzoats of potas, lime, and ammonia, ſulphats and muriats of potas, and a ſpecies of ſoapy ſubſtance, mentioned by Bergman. It muſt, however, be obſerved, that by careful waſhing, ſome organized remnants of the original ſtalks may ſtill be detected.

18. Among its fixed materials are found a conſiderable quantity of charcoal in a minutely divided ſtate; ſome carbonat of lime, phoſphat of lime, ſilex, alumine, magneſia, iron, and manganeſe. Sometimes ſilex is very abundant; for it may readily be conceived, that mould muſt differ in the proportions and elements of its fixed reſiduum, according to the nature of the plants from which it has been produced. We are aſſured, that in mould there are always found ſome ſmall cryſtals of quartz, perfectly regular and tranſparent; and this is by no means repugnant to the numerous examples of the ſolution and reception of ſilex into the organs of plants and animals.

19. One of the lateſt diſcoveries reſpecting mould, which diſtinctly proves the combuſtibility and highly compound nature of this

this ſubſtance, is its great power of abſorbing the oxygen of the atmoſphere, ſo as to leave only its azotic gas. Ingenhouz, who made the diſcovery, and Humboldt, who has confirmed and extended it by repeated experiments, conſider this abſorption as ſufficiently preciſe to conſtitute mould a proper eudiometrical inſtrument. It will be ſeen in the ſequel, that this remarkable property throws great light upon the phenomena of vegetation, as affected by the ſoil and by manures.

20. When we reflect on the concatenation and economy of the phenomena of nature, we readily perceive that the formation of mould, this neceſſary conſequence of the ſucceſſive deſtruction of dead vegetables, is the great and ſimple proceſs, whereby nature perpetually furniſhes the nouriſhment of new vegetation. That to this is owing the nature of the ſoils of all woody places, and is the ſource of their inexhauſtible fertility, as it perpetually ſupplies the ſame original materials for the continuance of vegetative nouriſhment. Hence, art has learnt to imitate the fertility of nature, to aſſiſt the production of thoſe vegetables required by human induſtry; ſo as to prevent the ſame ground from becoming quickly impoveriſhed and exhauſted, which it muſt be unqueſtionably, without this conſtant recruit.

§ V.—*Of Foſſile Wood.*

21. Though this ſubſtance is treated of by Fourcroy, under a ſeparate article, entitled, 'The ſlow decompoſition, and various changes which vegetables undergo under ground;' yet, as foſſile wood and peat ſeem much connected with the ſubſtances treated of in this preſent diviſion, it appeared proper to introduce them here. In the original article, petrified vegetables are introduced: but theſe, having no proper connexion with our ſubject, are here omitted.

22 Wood is often found buried under the earth, at from thirty to fifty feet below the ſurface; more eſpecially along the banks of ſtreams and rivers. In this ſtate it is readily aſcertainable to be wood, not only by its form, texture, and conſiſtency, but even by the large collection of trunks and branches heaped together in a confuſed maſs. Seldom are excavations made upon the ſides of rivers, or under their beds, without diſcovering this timber; ſometimes in ſuch quantities, as to be evidently entire trees, even parts of foreſts, buried by ſome great convulſion of nature,—ſuch as are ſometimes ſeen even in our days. Theſe ſtill more frequently occur near the large rivers of vaſt uninhabited continents; whoſe banks have carried, during a long ſucceſſion of ages, the produce of ancient vegetation, by which the ſoil is entirely covered and ſaturated.

23. Thus buried deep in the earth, or in water, without acceſs of air, vegetable ſubſtances undergo certain natural proceſſes of decompoſition, differing from thoſe already deſcribed. Having neither contact of air, nor, for the moſt part, ſufficient temperature for the fermentative proceſſes, they are not ſubject to the vinous, acetous, or putreſcent fermentations. Penetrated every where by water, which never quits them, or which carries along with it into their ſubſtance, ſaline acid earth, metallic or other particles, or modified in various other ways, they are effected by new cauſes and modifications during their deſtruction, which change their natures and appearances; and which, though they ſtill preſerve ſome part of their original compoſition, give them a very different ſtate and condition from what they poſſeſſed originally.

24. Theſe foſſile woods are uſually of a brown colour, or almoſt black, and of a ſoft tender conſiſtence when firſt uncovered. But when expoſed ſome time to the air, they harden quickly, and very conſiderably, preſerving their dark colour, and acquiring a much finer and cloſer grain and texture, than the ſame wood in its natural ſtate of timber. This foſſile wood is often very advantageouſly employed for ſome erections, particularly for ſuch as are to be expoſed to damp air, in low rooms, cellars, and ſuch places,—as it is unchangeable by the humidity of the atmoſphere. Foſſile wood is ſtill highly combuſtible, giving out little flame or ſmoke, but abundance of heat. When extinguiſhed, after being half burnt, its charcoal is denſe and heavy. In diſtillation, it gives over a fetid oil, which is almoſt ſolid.

25. In all theſe enumerated properties, we obſerve a woody ſubſtance, not of its original nature, which has undergone certain changes in its compoſition. The layers of wood, penetrated by water, have loſt part of their mucous, extractive, and other ſoluble matters. They are leſs or more reduced to the ſtate of pure woody ſkeletons. Part even of the external ſurface of their ligneous fibres is decompoſed, and reduced to the form and colour of charcoal. Part of their hydrogen has been carried off. In proportion as the water, which impregnates and ſeparates the layers, is diſſipated, perhaps by the incumbent preſſure, the layers approach together with force. Hence, the hardneſs, cloſe grain, and brilliant ſurface, which foſſile woods acquire, when cut and poliſhed. Hence, the little ſmoke and flame which they give out in burning. Hence, though ſtill ligneous, they tend towards entire decompoſition; and a ſtill longer continuance in their underground ſituation, would at length deſtroy them completely, by gradually diminiſhing their properties as vegetable ſubſtance.

Hence,

Hence, foſſile woods are ſometimes found quite friable, which never recover conſiſtency or hardneſs; and which may be bruiſed down into a ſpecies of mould.

§ VI.—*Of Turf or Peat.*

26. In a ſimilar manner, plants of various kinds, not woody, are gradually reduced to a carbonaceous ſkeleton, by being buried under moiſt earth, or by the filtration of water. There are many low-lying meadows, only equal with, or even below the ſurface of ſmall brooks and rivulets; which are ſucceſſively covered over with water, and again left partially dry; but through which water always percolates every where. Theſe ſwamps or meadows nouriſh an enormous quantity of plants, crowded together, continually growing, and, by their annual decay, forming ſucceſſive layers of their dead remains; by which the ſoil becomes covered to greater or leſs depths, according to circumſtances, with theſe vegetable remains, or the interwoven ſtems of herbaceous vegetables, of a black carbonaceous colour, and a diſagreeable and even fetid odour, which announce a conſiderably advanced ſtate of vegetable decompoſition.

27. This interwoven contexture of vegetable remains, ſtill ſomewhat ſolid, and retaining the combuſtible quality, is known under the name of peat; * and the places from whence theſe are procured, are called peat-moſſes. † Although peat is compoſed of an interwoven aſſemblage of ſtalks, originally thicker, and preſſed together into a kind of ſolid conſiſtency, yet, by careful ſeparation of the fibres, ſeveral of the plants which have contributed to its formation may be recogniſed. It can be ſeparated into long ſoft ſtems, uſually brown or black, ſometimes violet or blue, which no longer retain the conſiſtency of the original plants, and which are evidently altered in their texture and nature.

28. When peat is heated in diſtilling veſſels, it gives over a yellow or reddiſh fetid liquor, extremely fetid oil, carbonat of ammonia, and highly fetid carbonated hydrogen gas. There remains a charcoal, which is often pyrophorous; and from which, after being burnt to aſhes, ſeveral ſalts may be extracted. Theſe are chiefly muriats, and ſulphats of ſoda and potaſs, mixed with phoſphat of lime, ſulphat of lime, and oxyds of iron and manganeſe. All

* I prefer this term to that of turf; which latter is frequently uſed for the matted roots of recent vegetables on the ſurface, otherwiſe called *ſod*.—*R. r. r.*

† In French, *tourbières*, from *tourbe* a peat. Were it neceſſary, we might ſay peatery, as coalery is employed to denote the place whence coals are taken.—*R. r. r.*

the world is acquainted with the manner in which peat burns in grates and furnaces, the bad ſmell which it emits, and the reddiſh ferruginous aſhes which it leaves. It has been attempted, with ſome ſucceſs, to deprive it of theſe inconveniences, by half-burning it in cloſe veſſels, ſo as to char it in the manner of wood. The proceſs is certainly attended with advantages; but this ſpecies of charcoal is very inferior for moſt purpoſes to the charcoal of wood, and liable to take fire ſpontaneouſly, by the combined action of water and air, on which account it muſt be kept for uſe in well covered places. I had occaſion to ſee in Paris, a yard filled with charred peat, exceedingly well prepared, forming an immenſe pile, expoſed to the air. After ſome days of rain, to which, of courſe, it was completely expoſed, it began to exhale great quantities of white ſmoke, which ſoon changed to flame, and conſumed the whole maſs, threatening to produce a more extenſive deſtruction, by communicating the fire to the neighbouring combuſtibles.

29. Peat, therefore, is an aſſemblage of plants partially decompounded, half burnt as it may be called, and reduced almoſt to a carbonaceous ſtate, analogous in its nature to foſſile wood, which is likewiſe partially charred. It is employed for fuel in places where no other can be procured, and may be very advantageouſly uſed in that way in many manufacturing proceſſes, where very great heats are not required. Its aſhes is employed for manure; and, by lixiviation, ſome ſalts may be extracted from them that are uſeful in the arts.

30. In ſome peat moſſes, the peat is found to be impregnated with ſulphuret of iron or pyrites. This ſubſtance is ſo highly combuſtible, when expoſed to moiſt air, that ſuch peat, in its uncharred ſtate, becomes much heated when expoſed to the air, and even ſometimes takes fire. In ſome of theſe, particularly in the neighbourhood of Beauvais, the ſulphuret of iron is ſo abundant, that ſulphat of iron may advantageouſly be extracted from them by lixiviation in the ſame manner as from pyrites. It is likewiſe probable that a thick oil, analogous to tar, may be extracted from moſt kinds of peat by diſtillation, as was propoſed by Beccher in the year 1683.

31. * Upon attentive conſideration of the preceding account of foſſile wood, and eſpecially peat, it is obvious that they conſiſt of vegetable ſubſtances, partially decompoſed, and tending towards the ſubſtances already noticed under the names of muck and mould. Conſequently, by properly facilitating their farther decompoſition, theſe,

* This ſhort ſection, only, is added by the tranſlator; for which he muſt crave indulgence.—*R. r. r.*

theſe, more eſpecially peat, may be moſt advantageouſly employed to augment our ſtores of manure or vegetative nouriſhment. Accordingly this has already been ſucceſsfully attempted by a learned Judge of the Supreme Court at Edinburgh, by ſtratification of peat with raw muck Upon the ſame principles may eaſily be explained the fertilization of peat moſſes, after laying their ſurfaces ſufficiently dry, and facilitating its farther decompoſition into mould by the addition of quicklime or muck, or both. *R. r. r.*

(To be continued.)

[The following Papers are communicated by SIR JOHN SINCLAIR, Bart. who, at all times is warmly diſpoſed to promote the deſign of this Work, and to diſſeminate information upon every branch of rural economy. Their author, the late LORD DAER, a young Nobleman of diſtinguiſhed abilities, was much intereſted in every object which could render benefit to mankind, and a keen friend to the improvement of his native country. They were wrote at Paris in June 1791, and contain intrinſic evidence of the attention ſhown by his Lordſhip to the ſubject therein inveſtigated. While we, as in duty bound, are led to pay this mark of reſpect to his Lordſhip's memory, it cannot be improper to obſerve, that few of his contemporaries were better qualified to benefit the public, though, unfortunately, this illuſtrious character entered upon active life at a period when political animoſities occaſioned the moſt valuable qualities to be altogether loſt ſight of.]

Letter from Lord Daer to Sir John Sinclair, Baronet, dated Paris, 29th June 1791.

DEAR SIR,

I saw Mr Brouſſonet and Mr d'Aubenton, as you wiſhed, about the fine woolled ſheep of the Spaniſh breed. I have noted a few obſervations on the ſubject which I ſhall ſhew you, though probably unimportant I may juſt now obſerve, that the latter, on accurately comparing in my preſence the wools, was convinced, as I and all preſent were, that the fineſt Shetland you ſent over is not near ſo fine as his. I believe he once ſaid the contrary to you.

You ſay to me, 'it would be very deſireable to have as many of the Spaniſh breed from France as poſſible, and inquire how they may be obtained.'

I was ſorry, therefore, you had not aſked Brouſſonet for more; for at the time the fifteen were ſent, you might as eaſily have got thirty, and no favour done. D'Aubenton's flock allows him

to

to diſpoſe yearly of from ſixty to a hundred, rather more of which are rams than ewes; which he declares are all, as near as poſſible, equally fine. From the terrible embarraſſments formerly attending improvements of agriculture in this kingdom, he uſed to get little value for them, except to the butcher, at about twelve livres per head. Of late years, a greater demand, for the ſake of improving the wool, has ariſen; and he now gets forty-five livres, and next year may perhaps get forty-eight livres a head. Brouſſonet however expects, from the rapid progreſs agriculture promiſes under the new free conſtitution, and the great number of ſpeculative gentlemen and farmers which the Revolution has already produced, that in a few years theſe ſheep may ſell for ſix or eight louis a head.

The object of my now writing, is to ſubmit to your conſideration, whether it might not be adviſeable to endeavour to make a contract with D'Aubenton for all, or at leaſt half, of what he ſells, for ſome years, at a fixed price, ſay two, or even three guineas a head. I ſpeak of the price at his farm in Burgundy: If he would contract to deliver them at Rouen or Dieppe, ſo much the better. If you either can authoriſe this to be done for the Society, or would recommend it to me, and get ſome active, attentive perſons to join with me as a private concern, I will try whether D'Aubenton will come to any agreement. I do not know, but I think he probably will.

Direct to me *aux ſoins de Meſſrs Perregaux banquiers à Paris.* I hope you can anſwer me directly, as my ſtay in Paris may be ſhort. I am, dear Sir, your moſt obedient humble ſervant,

DAER.

Subſtance of a Converſation between Lord Daer and M. Brouſſonet, reſpecting Spaniſh Sheep and Wool, at Paris, on 4th June 1791.

There are no publications of any conſequence on the ſubject of ſheep and wool, excepting ſome ſcattered memoirs, which M. Brouſſonet had ſent to Sir John Sinclair.

There are a variety of breeds in Spain; but two of them only are diſtinguiſhed for the excellence of their wool. The firſt are ſtationary, and remain all the year round in the neighbourhood of the Pyrenees. They are long bodied, low, rather ill ſhaped, with ſmall horns, which generally fall out. Some of them were got into France about thirty or forty years ago; but being put on poor land, they rather decreaſed in ſize. 'Tis this breed only that can eaſily be procured in France, as the Spaniſh ſhepherds are often obliged to hire paſtures in that kingdom for their flocks. Thoſe in Rouſſillon are much the ſame, and nearly as fine. The other breed is the travelling one.

one. They are ſmall, very ſhort bodied, long legged, with large twiſted horns, wool hanging over their face, &c. This is the breed which M. D'Aubenton has. It is not difficult to ſmuggle even them; but they are often not of the fineſt ſort.

The propagation of Spaniſh ſheep in France has been much impeded by reſtraints; in particular, by the regulation, that all the ſheep in the pariſh muſt paſture in common, under the management of the ſame ſhepherd. One gentleman had got a flock of one or two hundred; and though he willingly paid the common ſhepherd, yet he was proſecuted, and fined three years ſucceſſively, for deviating from the law, and, in diſguſt, ſold his flock to the butcher. M. D'Aubenton can only have a flock of from two to three hundred. For many years, he had no demand for his ſpare ſheep, and ſold them to the butcher, even fine rams, at twelve livres, or ten ſhillings a piece. The demand is now greater, and the price forty livres, or thirty-four ſhillings each, for rams and ewes. Since the Revolution, agriculture has been more attended to and encouraged; and it is ſuppoſed that the price will riſe to five or ſix louis. M. le Blanc in Champaigne got his breed moſtly from M. D'Aubenton, and manages his flocks in the ſame manner. He ſells his rams at forty ſhillings a piece.

They get over Engliſh wool cheaper ſince the late acts, and as many Engliſh ſheep as they pleaſe. The expence of bringing them into France is only a guinea a head. A friend of M. Brouſſonet's is now getting two hundred from England and two hundred from Spain. Four times croſſing the breed with a Spaniſh ram, gives wool as fine as the original. It is thought that open ſheds, as a ſhelter againſt rain, is an advantage. It is imagined that a hot climate is of ſervice. The wool is then more oily, which is reckoned uſeful. M. D'Aubenton's breed more oily than the long bodied. The Engliſh wool is dry, even the Hereford, which is the beſt in England, and approaches to the Spaniſh. The Shetland wool remarkably fine, but not equal to the Spaniſh, nor ſo well calculated for making cloth. It does not ſpring out forcibly when compreſſed, as the Spaniſh does, and is not ſo much twiſted or crimped. This crimping in clothing wool cannot be too minute. The Spaniſh wool is not above an inch, or an inch and a half long. M. D'Aubenton has ſent fifteen of his beſt flock to Sir John Sinclair, and will ſend a ſcore more if applied to. The wool, on a good ram may weigh four pounds. The Spaniards divide their wool into five ſorts, and ſeparate it, previous to clipping, by opening lines through the wool as it grows on the body, before they apply the ſhears. It is ſuppoſed that the fineſt breed of ſheep is

in

in the internal parts of Africa, inland from Tunis and Algiers. A man ſent there to buy horſes for the King, brought over two or three finer than the Spaniſh, and ſaid to have more wool; but they are now extinct in France.

[Several of our Correſpondents having requeſted us to inſert the 'Rules and Regulations of the Morayſhire Farmers' Fund for the benefit of widows, orphans, and decayed members,' in compliance with their requeſt we give the principal ones, ſo as that farmers in other diſtricts may be benefited from their proceedings. At the ſame time we muſt add, that the annual payments appear to us as rather highly calculated; and we believe that the Morayſhire Club have it in contemplation to reduce them. More on this ſubject afterwards. At this time it is only neceſſary to ſay, that the inſtitution is laudable, and deſerves to be ſupported.]

Propoſed Rules and Regulations of the Morayſhire Farmers' Fund.

THE Morayſhire Farmer Club being deſirous of eſtabliſhing a proviſionary fund for the benefit of widows, orphans, and decayed members, under ſanction of the act of Parliament 21ſt June 1793, entituled, 'An act for encouragement and relief of the Friendly Societies,' named a committee of their number to prepare a ſcheme for that purpoſe. Their committee collected every information in their power regarding ſimilar inſtitutions, held various meetings and conferences, and conſulted with William Morgan Eſq. of the Equitable Aſſurance Office, London, an eminent calculator, on the buſineſs; and having procured from Mr Morgan a table of rates applicable to the views of the Club, the following Scheme and Regulations are now laid before the public, in the view of eſtabliſhing ſuch fund, viz.

1. That in order to carry the ſcheme into effect, it is neceſſary that there ſhall be one hundred ſubſcribers at the leaſt; and, in caſe that number is procured, they propoſe that the fund be entituled, 'The Morayſhire Farmers' Fund for providing annuities to widows, decayed members and orphans;' and that the fund ſhall be open for admiſſion to every man of good character and ſound health in the ſituations after deſcribed, who ſhall be willing to conform to the following regulations.

2. That no perſon whoſe age exceeds fifty-five years, or whoſe age exceeds that of his wife twenty years, can be received or admitted a member.

3. That all members after the Society is formed, by the junction of 100 members, ſhall be admitted by ballot at a general meeting of the Society; and that no perſon ſhall be admitted, unleſs

unleſs two thirds of the members preſent ballot for him; and until the number ſhall amount to one hundred, the candidates are to be balloted for in the manner above directed by the members of the Morayſhire Farmer Club, who have or may become ſubſcribers.

4. That there ſhall be five claſſes of annuities of 10l. 15l. 20l. 25l. and 30l. each; and that the married ſubſcribers are to pay annually the rates effeiring to the reſpective annuities made choice of by them, agreeably to their reſpective ages, and the ages of their wives at the period of their admiſſion, as ſpecified in the annexed table; and that bachelors and widowers, while they remain ſuch, ſhall only pay two thirds of the yearly rates ſo payable by married men ſpecified in the ſaid table: But in caſe of their marriage, they are, within three months thereafter, to pay up the full rates of the annual payments of their reſpective claſſes for the period they have been ſubſcribers, if, previous to their marriage, they have not contributed to the fund as much money as is equivalent to ſeven years rates, and intereſt thereof at five per cent. per annum, paid by married ſubſcribers in ſimilar claſſes; and thereafter they are to continue to pay as married men.

5. That the fund ſhall not be opened for payment of annuities, until ſeven years after its commencement; and that every member, his widow or orphans, muſt have contributed ſeven years to the fund, before being entitled to any benefit therefrom.

6. That in caſe of a decayed member, i. e. a member reduced in his circumſtances by innocent misfortunes, ſickneſs, or old age, claiming the benefit of the fund; it is provided that ſuch a perſon muſt have contributed to the fund at leaſt fifteen years, and that he muſt inſtruct, on oath, annually, that his income, gains, or earnings on which his ſubſiſtence depends, do not exceed yearly 20l., if he is of the claſſes of 30l. or 25l.; do not exceed 15l., if he is of the claſſes of 20l. or 15l.; and do not exceed 10l. a year, if of the 10l. claſs; in which event, he is to receive and be entitled to demand a ſimilar annuity with a widow of the claſs to which he belongs: But in the event of ſuch decayed member leaving at his death a widow or orphans, they ſhall only be entitled to one half of the annuity belonging to his claſs, unleſs ſhe or they ſhall pay up the ſums with intereſt which the ſaid decayed member may have received previous to his death: And it is hereby declared that no decayed member ſhall be entitled to give his vote at any meetings of the Society while he is a penſioner on their funds.

7. That the widows (after contribution by their huſbands in manner aforeſaid) ſhall be entitled, during their widowhood, to the annual rate provided to the claſſes to which they reſpectively belong,

belong, during their lives. But in caſe of the marriage of any widow, her annuity ſhall ceaſe as at the laſt term before her marriage. But if ſhe ſhall again become a widow, ſhe ſhall then be entitled to the benefit of the fund for the remaining years of her life and widowhood; and while ſhe remains a widow ſhe ſhall at all times make known her place of abode to the collector; and every widow ſhall, previous to the receiving her annuity, produce to the collector a certificate ſigned by herſelf, and atteſted under the hands of the miniſter of the pariſh in which ſhe reſides, or of the neareſt Magiſtrate, if the pariſh church is vacant, that ſhe ſtill remains the widow of the deceaſed member.

8. That the orphan or orphans of any member ſhall be entitled (after contribution in manner aforeſaid) to receive annually, equally among them, the rate provided to the claſs to which they belong, until they, or he, arrive at 17 years of age.

9. That if at any time it ſhall appear to the Society, that their funds will not be ſufficient to pay the claims of annuitants, and expence of management, then the truſtees ſhall be empowered to direct a call to be made upon the ſeveral members of the Society, in proportion to their claſſes and rates, for making good ſuch deficiency, provided the call in any one year does not exceed one third of his rate; and any member refuſing to anſwer ſuch call, ſhall be excluded from the fund, and forfeit all his payments to the benefit of the Society.

10. That if, in proceſs of time, it ſhall appear to the Society, that it has acquired a capital more than ſufficient to uphold its credit, as well as to ſatisfy all claims to which it may be liable, it ſhall then be competent for the Society to increaſe the allowance to the annuitants.

11. That as the annuities hereby provided are alimentary; it is declared that ſuch annuities and proviſions ſhall not be affectable by, nor ſubject to, the debts or deeds of the annuitants, or the diligence of their creditors by arreſtment or otherwiſe, in any manner of way.

12. That no widow, decayed member, or orphans, entitled to benefit from the Society, ſhall at any time ſell or otherwiſe diſpoſe of their annuity, or any part thereof: That no ſum or ſums of money ſhall or will be paid by the collector, but to ſuch widow, decayed member, or the legal guardian of orphans, whoſe receipts alone ſhall be accepted by the collector for payment thereof; and in caſe it ſhall be diſcovered that any of them has, directly or indirectly, ſold or parted with his or her intereſt in the fund as aforeſaid, then, upon ſatisfactory proof thereof, ſuch annuity ſhall immediately ceaſe, and neither ſuch annuitants, or any perſon or perſons on their account, ſhall have any further claim or demand on the Society.

14.

14. That all ſubſcribers ſhall be bound to keep and obſerve all the articles, clauſes, proviſions, and ſtipulations, herein ſpecified, together with all after agreements, rules, and by-laws, that have or ſhall, from time to time, be made at the annual general meetings, with the concurrence of at leaſt two thirds of the meeting, for the benefit of and better conducting the inſtitution; provided ſuch by-laws and regulations are made conformably to the act of Parliament before ſpecified.

15. That the funds of the Society ſhall be under the immediate direction and management of 12 ordinary truſtees, to be choſen by ballot at a general meeting of ſubſcribers, to be called and held at Elgin, ſo ſoon as one hundred members have acceded to the ſcheme: And it being indiſpenſably requiſite, that thoſe who are to be intruſted with the direction of the Society's affairs, ſhall have it in their power to attend to the deſpatch of buſineſs, with as little inconvenience to themſelves as poſſible, the forementioned 12 ordinary truſtees, ſhall be elected by ballot from among the ſubſcribers whoſe reſidence is in the town of Elgin, or within 12 miles thereof: But declaring, that the powers of the ordinary truſtees ſhall extend no farther than to the watching over the improvement of the Society's funds; but on no account are they to be entitled to alter in any particular, or deviate from, the fundamental principles eſtabliſhed in theſe articles, and table of rates therein referred to.

16. That, for the better conducting the Society's affairs, there ſhall alſo be choſen at the ſaid meeting, a collector, with ſuch ſalary as ſhall appear ſuitable at the time; he always, upon being elected, and before entering upon office, giving bond to the truſtees, with ſufficient ſureties, to the extent of L. Sterling, for the faithful diſcharge of his office, which ſhall be effectual to levy and make good the annual and other rates payable by the ſubſcribers, to pay the annuitants, and others entitled to receive money from the fund, and to ware and beſtow the ſurplus monies, upon proper ſecurity, for the intereſt of the Society, under the direction of the truſtees.

18. That there ſhall alſo be choſen, at ſaid meeting, a clerk to the Society, for the purpoſes of attending all general meetings of the Society, as alſo the meetings of the truſtees through the year, whoſe duty it ſhall be to record all reſolutions, tranſactions, and by-laws of the Society, in a book or books to be kept for that purpoſe, and to write cards or letters to the members, &c.; and he ſhall alſo receive ſuch ſalary as may be thought ſuitable, and find caution for the faithful diſcharge of his office, under the penalty of L. Sterling.

19. That the truſtees ſo to be choſen, ſhall continue to act until

until the firſt Wedneſday of June after their election, upon which day, between the hours of twelve and two o'clock afternoon, a general meeting of the Society ſhall be held at Elgin, and the like meeting ſhall be held upon the firſt Wedneſday of June, betwixt the hours of twelve and two o'clock afternoon, yearly thereafter, at which general meeting to be called as ſaid is, and at all after general meetings, three of the truſtees before mentioned firſt upon the liſt, ſhall be removed, and other three truſtees choſen by ballot in their place, from among the ſubſcribers, whoſe reſidence is in the town of Elgin, or within twelve miles thereof as aforeſaid; and theſe three, with the other nine truſtees, ſhall have the management of the funds during the year enſuing; and, in caſe any perſon choſen as an ordinary truſtee for the year, either at the firſt, or any after general meeting of the ſubſcribers, ſhall happen to be abſent, and afterwards decline to act, the remainder of the truſtees for that year ſhall be entitled to chooſe another in his place; as alſo, in caſe any of the ſaid twelve ordinary truſtees ſhall happen to die during the year, the ſurvivors of the truſtees, or their quorum, ſhall be entitled to chooſe another in the place of thoſe that may deceaſe.

21. That beſides the general annual meeting above mentioned, an extra general meeting may be called at any time on the joint requeſt of five ſubſcribers, the motives alleged by them for calling ſuch meeting being previouſly communicated to and approved of by a majority of the 12 ordinary truſtees convened for that purpoſe.

23. That the truſtees to be choſen as above, ſhall meet for the ordinary management of the affairs of the ſociety, quarterly, upon the firſt Wedneſday of February, May, Auguſt, and November, between the hours of twelve and two o'clock afternoon, or ſuch other hour as ſhall be found moſt ſuitable to the truſtees for the time, in ſuch place in the ſaid town of Elgin as ſhall be provided for that purpoſe, either by the truſtees or collector, as ſhall afterwards be found moſt adviſeable; the collector having always power to convene the truſtees oftener through the year as the Society's affairs may require, which he ſhall be empowered to do by a written notice left at their houſes five days before the meeting; and ſuch of the truſtees as fail to attend theſe, or the quarterly meetings before mentioned, ſhall be liable in a fine of 2s. 6d.

27. That the collector ſo choſen ſhall be convener for the truſtees, ſhall always be preſent at their meetings to aſſiſt them with his advice, and to furniſh them with any information they may have occaſion for. But the collector ſhall have no vote in the management along with the truſtees, unleſs where it ſhall ſo happen

happen that the truſtees at any meeting ſhall be equally divided upon any queſtion under deliberation; in that caſe, the collector ſhall have a caſting vote.

28. That the collector ſhall, annually, make up and report to the truſtees a ſtate of the Society's funds, with its receipts and diſburſements, to be laid before the annual meeting at leaſt ſix days previous to ſaid meeting; which ſtate, together with the books of the Society, ſhall be open at all times to the inſpection of the ſubſcribers or members of the Society.

30. That when any perſon ſubſcribes to the fund, he ſhall produce to the collector an authentic extract from the pariſh records, or other ſatisfactory evidence of his age, and, if he is married, of his wife's age alſo.

31. That all payments to the fund ſhall be made in advance, that is, the annual contributions for the year enſuing ſhall be conſidered as payable at the term of Candlemas yearly; and ſuch contributions ſhall bear intereſt at the rate of 5 *per cent. per annum*, after the term of payment, till paid.

32. That all married and unmarried members of the Society ſhall give the earlieſt notice in writing to the collector, of any change in their ſituation, as no widow will be entitled to her annuity, unleſs an information of her marriage ſhall have been lodged by her huſband, with the collector, ſix months at leaſt before ſhe becomes a widow; or unleſs her marriage can be proved in a ſatisfactory manner, to have been regularly and fairly entered into.—But this rule ſhall not apply to ſubſcribers who report themſelves married at ſubſcribing, and is only introduced to prevent colluſive and death-bed marriages, or any other ſimilar impoſitions that may be attempted upon the Society.—And it is hereby declared, that a marriage entered into by any member of the Society while on death-bed, or while he is in a bad ſtate of health, labouring under the diſeaſe of which he dies, ſhall be conſidered as a colluſive marriage, entered into with the fraudulent intention of creating a burden on the fund; and the widow, in ſuch caſes, ſhall not be entitled to an annuity.

33. That no widow whoſe huſband, or orphans whoſe father ſhall die before the expiry of ſeven full years from the term at which his annual ſubſcription commenced, and before he has made ſeven complete years payment to the claſs he has choſen or ſubſcribed to as aforeſaid, ſhall be entitled to the benefit of the fund; but if his widow or other repreſentatives chooſe to pay up the ſaid ſeven years annual rates, his widow or orphans ſhall be entitled to the benefit of ſaid fund.

34. That where a ſubſcriber ſhall be in arrear to the fund, and dies leaving a widow or orphans, they ſhall reap no benefit

until theſe arrears be paid, and their annuities ſhall only commence from the time ſuch arrears are paid up.

35. That widows' penſions ſhall be paid annually, without any deduction whatever, and ſhall commence and be payable at the firſt term of Whitſunday that ſhall happen ſix months after the deceaſe of her huſband.

36. That the annuity payable to orphans as above, ſhall become due at the firſt term of Whitſunday that happens ſix months immediately following the death of the father; which, in the event of the contributions being fully paid up in manner foreſaid, ſhall alſo be paid to them without any deduction.

38. That as circumſtances may occur, in which a man may chooſe to provide more amply for his widow and children than the limited advantages of one individual claſs can afford, it ſhall be permitted to any perſon to ſubſcribe to two or more claſſes as he may find convenient.

39. That as the very exiſtence of the fund, from the nature of the calculations it is eſtabliſhed upon, depends on the punctuality of the payments of the ſubſcribers, and on the certain and ſpeedy improvement of all money due to it, every ſubſcriber who ſhall not pay his annual contributions, ſhall be ſubject to immediate proſecution for ſuch contributions in arrear, with an additional ſum of two ſhillings per pound, beſides the full expences of proſecution.

40. That as it is evidently the intereſt of every bachelor to enter early into this ſcheme, there ſhall be no objection made to the youth of the ſubſcribers.

42. That if any member of this Society ſhall fail to pay his contributions, with the intereſt thereof, and forfeiture of 2s. per pound for two years after the ſame become due, he ſhall be excluded, and alſo forfeit all his preceding payments.

45. That none of the preceding rules, orders or regulations, ſhall be altered, reſcinded or repealed, unleſs with the conſent and approbation of at leaſt four fifths of the members of the Society, aſſembled at two annual general meetings to be called for the purpoſe.

46. That all the preceding rules, orders and regulations, ſhall, as ſoon as the ſame are ſanctioned and confirmed at the Quarter Seſſion of the Peace for the county of Elgin, or an adjourned meeting thereof, be forthwith entered in a ſederunt book of the Society, and be ſubſcribed as ſoon as poſſible by all the members of the Society; and all members to be afterwards admitted, ſhall alſo ſubſcribe the ſame at their admiſſion, by which they ſhall be ſtrictly bound to all the rules, articles, and regulations therein contained.

TABLE.

TABLE REFERRED TO,

Shewing the annual premiums (the firſt to be made at the ti ſubſcribing) for ſecuring an annuity of 10l. to the widow of the ſcriber after the firſt ſeven years, or to himſelf, if diſtreſſed, afte firſt fifteen years, or to ſuch orphans as ſhall ſurvive him till t y attain the age of 17 years. Theſe payments to be continued during the life of the member, or until he ſhall be incapacita D neſs or diſtreſs.

EQUAL AGES.	ANNUAL PREMIUM.			Additional ſum to be paid for each year which the age of the huſband exceeds that of the wife.		
	£.	s.	d.	£.	s.	d.
25 & under.	2	5	0	0	0	8
26	2	5	6	0	0	8
27	2	6	0	0	0	9
28	2	6	8	0	0	10
29	2	7	6	0	0	11
30	2	8	6	0	1	0
31	2	9	6	0	1	0
32	2	10	8	0	1	0
33	2	11	10	0	1	0
34	2	14	0	0	1	0
35	2	15	4	0	1	0
36	2	16	8	0	1	0
37	2	18	2	0	1	1
38	2	19	10	0	1	2
39	3	1	6	0	1	3
40	3	3	0	0	1	4
41	3	5	0	0	1	5
42	3	7	0	0	1	6
43	3	10	0	0	1	7
44	3	12	0	0	1	8
45	3	14	0	0	1	9
46	3	14	0	0	1	9
47	3	14	0	0	1	10
48	3	13	0	0	1	10
49	3	12	6	0	1	11
50	3	10	0	0	2	0
51	3	8	0	0	2	1
52	3	6	6	0	2	2
53	3	5	0	0	2	3
54	3	4	0	0	2	4
55	3	3	0	0	2	6

N. B.—To ſhew the annual rates payable by thoſe intending to ſubſcribe 15l. claſs, they have only to mutiply the above by 1½; for the 20l. claſs, by 2 the 25l. claſs, by 2½; and for the 30l. claſs, by 3.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIR,

I am extremely sorry to occupy so much of your valuable Work with a discussion which can only be interesting to a few of your readers; and I fear has now become tiresome to all. I was always confident, that if Sir George Mackenzie and I had only the good fortune to understand each other, we would agree. From his letter, p. 192., I perceive we are not far from a cordial agreement; and after offering a single remark on his Note, p. 26., I shall take the liberty of making such observations on his letter as, I hope, may have the effect of bringing us to a thorough understanding, and of ending the discussion.

In p. 26., Sir George expresses his surprise there should be no remainder, and that I did not lose *one atom;* when it is evident, from the very nature of my process (whether right or wrong I shall submit to Sir George's own decision), it was not possible there could be any remainder or *atom* lost in the calculation. He also says—'*Fine clay* and *sand* are expressions inadmissible in a chemical process; and in his essay, I am pretty sure, Mr Headrick will not use them.' Had my object been the ultimate analysis, or the resolution of limestones into the proportions of primitive earths they contained, I certainly would not have used such terms. I know as well as Sir George, that neither clay nor sand (quartz) are simple bodies, the first being a compound of alumina and silica; the latter of silica, with a very minute proportion of alumina, and occasionally of other substances. My object being to find, not the primitive earths, but the substances, as they exist *in rerum natura*, combined with limestone, I apprehend *fine clay* to be a very proper expression, as it denotes the unctuosity and greasy feeling of that substance, when separated from sand or quartz.

With regard to decomposing bodies into their primitive earths, I have tried several processes for that purpose, on stones in which none but the most usual earths, or metallic oxyds, occur. I might proceed to detail some of these processes, which, though perhaps not better, differ in several respects from that adopted by Sir George. But as neither the number, nor specific differences of the primitive earths, are yet settled by chemists, I really do not see any practical advantage agriculture is likely to derive from a detail of such processes; or from any controversy concerning their accuracy or defects.

I shall pass over the first paragraph of Sir George's letter, with remarking, that I do not see how I have *virtually* acknowledged the validity of his objections to A. S.'s processes. Nor did I intend

tend to offer any *apology* or *vindication* of that gentleman, because I did not conceive he needed any, as his paper appeared to me correct, as far as it goes. I had no communication with him on the subject, and presumed, if he needed vindication, he was well able to vindicate himself.

With regard to the insinuation of my misrepresenting Sir George's former communications, I am not conscious of having wilfully done so. The papers are before the public, whom I leave to judge of the validity of the charge; and Sir George was not entitled to bring such an accusation against me, unless he had condescended on the specific instances in which I had misrepresented his communications. The remainder of this paragraph I confess I do not understand.

In his second paragraph, Sir George finds fault with my process, as discovering only the quantity of *carbonate*, and not the quantity of *pure* lime, which a farmer carries home.

In answer to this, it may be observed, that lime is seldom so completely burnt as to have all its carbonic acid expelled from it. In general, the farmer 'carries home' more or less of carbonate of lime; and the reduction of the mass to its lightest state, by the expulsion of all the evaporable ingredients, is seldom effected.

Though I stated that some limestones discovered a deficiency of carbonic acid, even by their mode of effervescence; yet these extreme cases are rare: and those limestones which contain a proportion of bitumen or carbon, though they may vary a little, discover no sensible variation in their proportions of carbonic acid combined with the proportions of pure lime they contain.

If, then, we were furnished with a medium standard of the usual proportion of carbonic acid, and water of composition, in carbonate of lime; having ascertained the proportion of refuse, we might easily calculate the proportion of pure lime in the mass, without any sensible error.

Sir George should observe, that though Bergman and Kirwan differ considerably in the proportions of carbonic acid contained in carbonate of lime, they both agree in stating the evaporable matter at 45 parts in a 100; and Dr Thomson only differs from them in making the evaporable matter 5 *per cent.* more.

Suppose, then, we assume 45 to be the medium proportion of evaporable matter in carbonate of lime, and 10 as the proportion of refuse in a stone, the contents of the stone will be as follows;

Refuse - - - - - - - - - - - -	10
Carbonic acid and water - - - - - - -	40½
Lime - - - - - - - - - - - - -	49½
	100

And if we take Dr Thomſon's ſtandard of 50 as the proportion of acid and water, the contents of the ſtone will be,

Refuſe	10
Carbonic acid and water	45
Lime	45
	100

Perhaps the true ſtandard may be the medium between theſe two; and thus, having found the proportion of refuſe, the carbonate of lime is given, and the proportion of pure lime in the maſs may be deduced by a very eaſy calculation. Whether the ſtandard be correct or not, calculating by one ſtandard will, at leaſt, enable us to form a comparative eſtimate of the quantity of lime in different ſpecies of limeſtones.

In the proceſs I attempted to deſcribe, the lime may be precipitated from ſolution in the form of carbonate, and, being waſhed, may be burnt into pure lime in a platinum cup or crucible, and its amount aſcertained by weighing. But in all ſuch operations, there is uniformly ſuch a loſs as muſt render the reſult more uncertain than that which is deduced by calculation from a ſtandard, even though not altogether perfect.

In his next paragraph, Sir George thinks 'no farmer, ignorant of practical chemiſtry, can be ſuppoſed able to manage acid, muriate of barytes, ammonia, and potaſh.' But if Sir George had attended to my deſcription, he would have ſeen, that, in general, the only chemical agent the farmer has to manage is the acid, and that if this be well managed the others are very ſeldom neceſſary. For if all the lime, and nothing but the lime, be diſſolved and waſhed from the refuſe, I would aſk Sir George what more the farmer needs to calculate the value of his limeſtone? The other agents are, therefore, only neceſſary to prevent errors, or to correct them if they ſhould occur; or, as ſtated in my paper, to enable the farmer to confirm his analyſis by ſyntheſis. But if the firſt proceſs be accurately conducted, the laſt is wholly unneceſſary.

Sir George proceeds to recommend analyzing the burnt ſtone, in preference to the raw ſtone, which is agreeable to my uniform practice, as often as I had opportunity. I may ſtate that, in moſt caſes, where I had an opportunity of making a fair compariſon between the analyſes of the raw and burnt ſtone, from the ſame maſs, the proportion of lime found in the burnt ſtone did not much vary, and often exactly correſponded with the proportion calculated from Bergman and Kirwan's ſtandards, the only ones then known to me, upon the data furniſhed by the analyſis of the raw ſtone. Any ſlight variations I imputed to ſome error in the

the process, and assumed the medium as the true value of the stone.

In p. 14. of my paper, I point out circumstances which render the analysis of the burnt, preferable to that of the raw stone; but the printer has said, 'or the stone may be analysed *before* it is burnt,' when I am certain I said, or meant to say, '*after* it is burnt.' In other places, he uses *varites* for *barites*, and *quarty* for *quartz*. If any part of Sir George's objections be founded on such mistakes, I protest I am not answerable for them.

But Sir George appears to be jocular, when he recommends dissolving 100 lib. of burnt stone in acid, with a view to ascertain its purity. This would occasion such an enormous expenditure of acid, as to be wholly out of the reach of ordinary farmers; and after all, the result would not be nearly so accurate as when only an ounce or a 100 grains were operated upon.

Those only who have attempted to reduce theory to practice, are judges of the difficulties which stand in the way of any particular operation. The analysis of burnt lime is of no value, unless it be so completely burnt as to yield no effervescence with acid. It should be weighed hot from the kiln, before it has reabsorbed any portion of its carbonic acid, or water of composition, the latter of which it greedily imbibes from the atmosphere. Being afterwards slacked, it ought to be diluted with a large addition of water, and the acid added slowly, in order to counteract the effects of the violent heat evolved by the combination of acid with quicklime.

But as the several beds in the same quarry vary in their degrees of purity, the lowest being generally best, it is evident, that specimens selected from a kiln, where they are all tumbled promiscuously, will not enable you to form an estimate of the average value of all the beds. If you attempt to burn selected specimens, by the sudden and violent heat of a smith's forge, or by other similar means, you run the risk of vitrifying the stone, unless it be possessed of very great purity.

In the papers that have come through my hands, having suggested the propriety of analyzing certain limestones after, as well as before they were burnt, in order to form an accurate estimate of their value; and having often practised this mode, I only suggest these hints, not as insurmountable difficulties, but as facts which ought to beget caution and wariness in conducting such processes.

I have thus attempted to offer every explanation that occurred as necessary, on points which seemed evidently deducible from my former communication. When I sketched off that letter, it did not occur to me that Sir George Mackenzie, or any other

perſon who is a competent judge of theſe matters, could poſſibly miſtake my meaning, and hence I endeavoured to avoid going into a wilderneſs of detail.

Unleſs, therefore, Sir George ſhall undertake to prove that my whole ſuperſtructure reſts upon erroneous principles, or demands a ſpecific explanation of ſome point on which I may have expreſſed myſelf unintelligibly, I hope this diſcuſſion will be conſidered as terminated. For I cannot help repeating my regret, that ſo many of your valuable pages ſhould be occupied with a ſort of blind man's buff, where neither of the parties underſtand what the other would be at. And I have the honour to remain, your obedient, &c.

Edinburgh, 4th June 1805. JAMES HEADRICK.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On Lime. Anſwer by A. S. to Sir George S. Mackenzie, Bart.

SIR,

IN your uſeful work for February 1804, I communicated a few obſervations on the importance to farmers of aſcertaining the quality of the lime they uſe, and gave alſo ſome hints for enabling them to do ſo.

One of the methods pointed out by me was in three ſhort ſentences as follows: 'Buy a bottle of muriatic acid (ſpirit of ſalt), which may be obtained from any laboratory. Then weigh out equal quantities of the limeſtones, the comparative quality of which you mean to aſcertain, mixing together a due proportion of the different ſeams or ſtrata, that are commonly wrought in each quarry. That limeſtone, which leaves leaſt ſediment, (when diſſolved in the acid), is of courſe the beſt.'

This method I have been in the uſe of practiſing for many years paſt. I know not from whence I derived it; but think moſt probably from the late Dr Black. Indeed, it might occur to any one acquainted with chemiſtry, as ſufficient for aſcertaining the quality of limeſtone with all the accuracy neceſſary for the purpoſes mentioned in my paper.

But this mode of analyſis, as it was called, did not pleaſe Sir George Stewart Mackenzie of Coul, Baronet, a gentleman who, beſides telling us his name and addition, informs us that he had been lately a ſcholar of Dr Kennedy, who endeavoured to teach him the art of analyſis, and ſometimes employed him with ſuch ſimple materials as marl, and, when he was *difficulted*, uſed to give him directions how to proceed.

Sir

Sir George's animadverſions, ſome thought, were rather haſty, and, indeed, it appeared to me that he thought ſo himſelf, of his firſt paper on the ſubject; for, at the concluſion of his ſecond ſpeculation, he ſays, 'In making his remarks on the above, A. S. may think he has obtained a victory.' He adds, 'In this caſe I yield to him, provided he uſes pure acid; but only *till he ſtudies and practiſes the art of analyſis*,' &c.

He had, however, no occaſion to be afraid that I would make an inſulting uſe of my victory; for, as I regarded him with that eſteem naturally beſtowed on the riſing merit of a young man of fortune engaged in literary purſuits, inſtead of diſſipation; as he acknowledged that, upon trial, he aſſented to the juſtneſs of the mode I had mentioned; and moreover, as I conſidered as trivial all that he ſaid about the great danger of buying an impure acid from a laboratory, I had no intention of making any anſwer to his two papers.

Contra verboſos noli contendere verbis;
Sermo datur cunctis, animi ſapientia paucis.

Two reſpectable gentlemen, however, Mr Low of Annfield, and the Rev. Mr Headrick, thought proper to take up the matter, and to give, in my opinion, a moſt ſatisfactory anſwer to Sir George's two papers.

Mr Headrick being confeſſedly a practical and experienced mineral ſurveyor and chemiſt, I conſidered myſelf lucky in having been the means of calling him forth to give an opinion on the beſt means of aſcertaining the qualities of different limeſtones: a ſubject that I regarded as of more importance to farmers than they ſeemed to be aware of.

This gentleman, in a very excellent paper in your Magazine, approves of my obſervations, and, completing what I begun, gives full and particular directions for trying the quality of lime; and in a very modeſt manner points out to Sir George the errors in his plans of analyſis.

Not ſatisfied however with this, Sir George has thought proper to make a reply, which appeared in your laſt Magazine.

On this paper, I muſt beg your indulgence while I make ſome remarks; and as Sir George is not pleaſed to allow me to leave the field of combat, but drags me again into view in his reply, I muſt, though maſked, enter the liſts with this redoubtable knight, who, in the words of Pol-Œconomicus, inhabits the ancient caſtle of *Highland hoſpitality*.

Sir George, in his reply, alleges, that farmers may be miſled by analyzing in my way unburnt limeſtones, or carbonate, and adviſes that the ſtones ſhould be burnt, 'and afterwards the reſt of

of the proceſs (of Mr Headrick and A. S.) ſhould be gone through with great care;' becauſe, ſome limeſtones contain larger proportions of carbonic acid than others.

To this I anſwer, that it ſo ſeldom occurs that different limeſtones have not nearly an equal proportion of fixed air in the ratio of their purity, and when it happens otherwiſe, it is in ſo trifling a degree, that this can afford no ſufficient cauſe for uſing in the analyſis burnt ſtones in preference to unburnt. But I do not diſcommend uſing burnt ſtones, if they are properly burnt; only in my former paper I obſerve, 'each portion for trial muſt be preciſely in the ſame ſtate.' Now, it is the difficulty of obtaining each portion for trial in the ſame ſtate, that makes me prefer rather the analyzing of carbonate than burnt lime. Becauſe, for inſtance, ſpecimens of the latter are in danger of being incompletely burnt or vitrified, or may, in an uncertain degree, have imbibed part of their water and carbonic acid.

Sir George alſo tells you (and it ſeems to be the principal cauſe, for aught I can diſcover, of his writing a reply at all) that he 'conſiders it as *ſuperfluous* to point out how Mr Headrick has virtually acknowledged the validity of his objections to A. S.'s proceſſes.'

In this Sir George acts with no common dexterity; but, unfortunately, the obſervation could hold ground only upon the ſuppoſition that A. S. might be unable or unwilling to write any more on the ſubject. The Baronet alleges, it is ſuperfluous to point out what he *never can find*. Indeed, no man would ever ſuppoſe that Mr Headrick could mean to acknowledge the validity of Sir George's objections to A. S.'s proceſſes, who reads his preamble. For Mr Headrick there ſays, 'The mode of analyzing limeſtones propoſed by A. S., I have reaſon to believe, was firſt ſuggeſted by me. After trying it during ſeveral years, I gave a ſhort deſcription of it in an Eſſay on Manures publiſhed by the Board of Agriculture.'

Sir George muſt, therefore, be either over ſolicitous about Mr Headrick's good opinion, or fonder of the public opinion than diſcretion warrants, when he permitted himſelf to write the paragraph above commented on; for he does not forget or paſs by the diſcovery of Mr Headrick, but tauntingly calls A. S.'s paper by the epithet of *Hints of Mr Headrick's invention*.

Now, Sir, although I could feel it as no diſparagement to have given hints of Mr Headrick's invention, and even taken leſſons from him; following the good example of Sir George himſelf, when he was taught to analyze marl by Doctor Kennedy, who, he ſays, 'when I was *difficulted*, he uſed to give me leſſons how to

to proceed:' Yet I muſt here ſay the truth, that I never had any communication whatever with Mr Headrick on that ſubject, and do not remember ever to have read any paper of his upon it.

Sir George next proceeds to adviſe farmers to burn a piece of limeſtone completely, and to diſſolve no leſs than one hundred pounds weight of it in an acid.

This ſhows not only that Sir George is a ſerious convert, but alſo that he goes upon a grand ſcale in his experiments. Inſtead of a few grains of lime and a ſmall phial of muriatic acid, Sir George muſt, for experiments of ſuch magnitude, ſend carts with a number of horſes to carry home the whole ſtock in hand of ſome eminent manufacturer of the acid, which, indeed, proves completely what Sir George alleges in his firſt paper. 'I have had occaſion (ſays he) to uſe about as much muriatic acid as moſt amateurs of the art of chemical analyſis.' It may be added, and, indeed, at this rate, as much as all of them together.

Lime and other calcareous ſubſtances are an important material of manure to the farmer. But although they were uſed by the Romans in that way as early as the time of Pliny, and appear (at leaſt marls) to have been laid on the corn fields of the Britons, Germans, and Gauls before that period *, yet it is only ſince the new improvements in the ſcience of chemiſtry (in which our ſchoolboys now think themſelves adepts) that any attempts have been made to diſtinguiſh accurately what of theſe ſubſtances are moſt deſerving of the farmer's notice. Formerly, for want of better criteria, they were diſtinguiſhed by their colours, and were called by the ancient Greeks, Romans, and Gauls *leucargillon*, *tiburtinum*, *eglecopala*, &c. though we now know that theſe colours are derived from adventitious matters, moſt generally from iron, which are of little conſequence in aſcertaining the richneſs of the manure. Like gold ore, limeſtone is only valuable to the farmer for the quantity of the genuine material wanted which it contains. And as, to the gold refiner, it is of little conſequence to examine of what the droſs is compoſed; ſo, to the farmer, it is of ſtill leſs importance to inveſtigate what are the names and exact proportions of each ſort of earth or metal that conſtitute the refuſe of his lime. Yet it is upon this point that Sir George Mackenzie ſeems to enlarge the moſt.

This leads me back to make ſome remarks on the nature of the original

* Hedui et Pictones calce uberrimos facere agros; quæ ſane et oleis et vitibus utiliſſima reperitur. *Plin. Nat. Hiſt. lib.* 17. *cap.* 8.

original attack of Sir George Mackenzie on my paper on aſcertaining the quality of lime.

As Sir George has been very liberal in his good advices to me, be pleaſed, Sir, in return, to allow me to offer a little of my ſervice to him in that way. He remarks, 'I do not ſcruple to ſay that A. S. was rather raſh in ſending you the letter under review; and from what is therein diſplayed, it appears probable that had he been in the cuſtom of ſigning his real name, he would never have ſent you the ſaid letter.'

Give me leave to ſay, that unleſs Sir George had been a little more ſure in his premiſes, it might perhaps (but for the ſpirit diſplayed) have been fully as prudent for him to have followed the modeſty of my example, and not to have exhibited his name in your Magazine.

I exhort Sir George, before he puts his name to another ſuch attack, to peruſe with care the letters of Junius to Sir William Draper; and in the words of that elegant writer I beg leave to tell Sir George, 'that I approve of the ſpirit with which he has given his name to the public; and if it were a proof of any thing but ſpirit, I ſhould have thought myſelf bound to follow his example. I ſhould have hoped that even my name might carry ſome authority with it, if I had not ſeen how very little weight or conſideration a printed paper receives even from the reſpectable ſignature of' Sir George Mackenzie.

But Sir George ſeems to conſider me as an unlearned farmer; and a farmer, according to his ideas, muſt be illiterate; judging probably of the education and acquirements and forbearance of farmers, from what he may have obſerved among ſome unfortunate, perhaps oppreſſed individuals, not unknown to the Man of Roſs. 'Strict ſcientific language (ſays he) is not to be expected from a farmer, nor ought he to be expected to be able to underſtand it; and therefore, on the chemical language of A. S. I forbear making any remarks.' All this is prefatory merely to his gravely telling me, that I ſhould not have denominated lime an *alkaline ſalt*, but a neutral ſalt that has '*properties in common with alkalis*.' Riſum teneatis!

Does Sir George believe that there are not farmers not leſs learned than he may conceive himſelf to be, and that, moreover, will not fawn like a ſpaniel to the arm that ſtrikes them?

There are farmers, Sir, who could teach Sir George pithy precepts on the regulation of labour, as well as Pol-Œconomicus.

There are farmers who could inſtruct Sir George in the principles of chemiſtry, even though he has had the aſſiſtance of Dr Kennedy and of Mr Headrick.

There are farmers who could inform Sir George of the moſt accurate

accurate plans of conducting ſcientific reſearches: and who perhaps could alſo initiate that gentleman in the polite art of being 'ſoftly ſweet' (*ſuaviter in modo, fortiter in re*) in communicating uſeful knowledge to thoſe eſteemed leſs learned than himſelf.

There are farmers that could tell him at a glance, that *difficulted* is not to be found in Dr Johnſon's or any ſtandard dictionary; and perhaps have pointed out many other unclaſſical words uſed by Sir George in his moſt elaborate compoſitions.

There are farmers who could ſhow the Honourable Baronet that he is not only deficient in purity, but in propriety of language; that the laſt ſentence of the firſt paragraph of his reply is confuſed to ſuch a degree as to be unintelligible; and that the following ſentence is a puzzle: 'His (Mr Headrick's) proceſs cannot diſcover what is wanted, any more than what I propoſed, to enable a farmer to gueſs what he wiſhed to know.'

To be incaſed in impenetrable armour is the duty of every chivalrous knight that attacks an unknown foe; otherwiſe he may be in danger of coming off but ſecond beſt in the combat. Nevertheleſs, like the celebrated cap-a-pie accoutred knight of La Mancha, who, in too great haſte to ſhow his valour and intrepidity, aſſailed the more potent arms of certain wind-mills, other doughty knights may alſo happen to be made recreants by a P. Œ. or an A. S., without being able to boaſt of deriving much credit from the adventure.

A. S.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On Cement of Lime.

SIR,

HAVING ſeen in your Magazine, May 1805, a criticiſm upon a work of Mr Loudon on Planting, and in which certain doctrines concerning the ſouring of lime are introduced by *Muratore*, which, though agreeable to common practice, I conceive to be highly detrimental to cement, I beg leave to oppoſe a fact or two to Muratore's *four ſyſtem*.

Not having ſeen the work which Muratore criticiſes, I do not know whether it treats the ſubject correctly or not; nor is this of any great importance to the facts I am about to ſtate.

I enjoyed the advantage of ſtudying chemiſtry under the late Dr Irvin of Glaſgow; a man whoſe profound and accurate knowledge, eſpecially of the ſcience which he profeſſed, is well known to all who had the happineſs of his acquaintance, though it was not ſo much obtruded upon public notice as the attainments of ſeveral

ſeveral others of far inferior abilities. The Doctor repreſented ſouring as a late invention, calculated to diminiſh, or utterly to deſtroy the hardneſs of cement; and aſcribed the hardneſs and ſolidity of the cement, in antient buildings, to its having been applied immediately after the lime was ſlacked, before the barbarous practice of ſouring was known or thought of. I am ſorry I cannot lay my hands on my notes from that very ingenious profeſſor's lectures, or I would ſtate to you the ſubſtance of his doctrine on this ſubject.

But this does not ſeem at all neceſſary, as the profeſſor had an opportunity of illuſtrating his doctrine by practice, every ſtep of which I and his other pupils were encouraged to examine. I ſhall therefore ſimply ſtate his practice, as far as my recollection may enable me.

The Profeſſor was employed in making experiments with a view to the introduction of the cryſtal-glaſs manufacture at Glaſgow; and, for this purpoſe, he conſtructed a ſmall cone, with other neceſſary buildings, in a corner of the old glaſshouſe yard. The lime he uſed for cement was brought in ſhells from the country, and immediately put into a furnace, where it was kept red-hot, until it was uſed. Only one ſhovel of the red-hot ſhells was taken out at a time, and immediately ſlacked, by throwing water upon it. The powdery lime was now ſifted through a fine wire ſieve, and the knots or bits which had not fallen into powder, were thrown aſide. For every ſhovel of the ſlacked lime, three ſhovels of fine clean river ſand, from the Clyde, were ſifted upon the heap; and by the frequent change of the ſieves, care was taken to mix the lime and ſand as intimately as poſſible during the ſifting. The reader muſt obſerve, that the proportion of ſand uſed depends entirely upon the purity of the lime, which, I doubt not, the Doctor had aſcertained. I make this remark, that the reader may not ſuppoſe the proportion uſed by the ingenious Profeſſor is recommended as an univerſal ſtandard; for it is evident, that if the lime be of greater or leſs purity than what he uſed, it will require a greater or ſmaller proportion of ſand.

The inſtant that one ſhovel of lime and three of ſand were ſifted together, the heap was drenched with water, and rapidly mixed with ſpades and plaſhing ſticks, reduced to a thin conſiſtence, thrown into backies, and carried to the wall. The workmen then proceeded to form a new heap, by ſifting more lime and ſand; and a new ſhovel of hot ſhells was not taken from the furnace until its predeceſſor was exhauſted. The number of builders, of bearers, and preparers of the cement, balanced each other ſo exactly, that a backie of cement was hardly a minute in waiting until it was incorporated in the wall. The cement, though applied very

very thin, took hand almoſt inſtantaneouſly; and though theſe buildings be now of no farther uſe, it is believed they could not be removed without blaſting with gun-powder. Though conſtructed of very hard and well-baked bricks, I believe it would be much more eaſy to break down the bricks than the cement; and were Muratore endowed with the ſtrength of Samſon, he might carry this cone on his ſhoulders in a ſolid maſs, and exhibit it as an exception to his doctrine. One of the large cones of that work, which had been conſtructed on the ſouring ſyſtem, fell ſeveral years ago with a tremendous craſh, when hardly any two bricks were found to adhere. This could not have happened had they been all bound into a ſolid maſs, by a proper cement.

I remember, when Dr Irvin was engaged in this building, all the men of Muratore's profeſſion were againſt him; and he was obliged to hang over them from morning to night, to prevent them from murdering his experiment. But however they and Muratore may pique themſelves on their profeſſional experience in building, I can aſſure them I would be diſpoſed to place much more reliance on the opinions of a profound and accurate philoſopher like Dr Irvin, eſpecially when confirmed by fact, than on any doctrines which have been ſanctioned by their practice. The mole may be allowed the merit of knowing accurately many minute objects under ground, which have eſcaped the notice of other creatures; but I never heard him famed for aſtronomical obſervations, or that his obſervations in that ſcience were endowed with any weight or authority.

Muratore obſerves very juſtly, p. 240. that lime, when ſlacking, expands with irreſiſtible force; and I have actually ſeen walls and plaſter burſt and fall down, by pieces of lime ſlacking after it had been put into the wall. But does it therefore follow, that ſouring is abſolutely neceſſary, and the only noſtrum to prevent this effect, when the evil can be much more readily obviated by ſifting the lime, as was done by Dr Irvin?

In p. 239, Muratore ſeems to repreſent long ſtanding as contributing to the intimate mixture of the lime and ſand in the cement. Does he mean to aſſert that the particles of lime and ſand, when put into the ſame heap, acquire a locomotive power, that they can travel about until they find each other out, and ſhake hands? This is ſo like a doctrine which made much noiſe of late, *of an operating principle in the cauſe to produce the effect*, that I ſuſpect Muratore means to foiſt it upon us as an article of faith. I can conceive Muratore's heap to ſtand till doomſday, and yet the relative poſition of the particles to remain the ſame as when it was laid down. Long ſtanding ſeems therefore noway to contribute to the intimate mixture of lime with ſand in the compoſi-

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tion of cement; which can only be accompliſhed by a vigorous uſe of the mechanical means employed by Dr Irvin.

The young ſtudent of chemiſtry introduced at the bottom of p. 240, ſeems only to have retailed by rote what he had learned from his maſter. But I beg leave to inform that young gentleman, that if he ſaturate the lime with fixed air before he puts it into the wall, it never will take a band; and that every particle of fixed air which combines with the lime before it is applied, will diminiſh (as far as it goes) the adheſive power of the cement. Were not this the caſe, pounded chalk might make as good cement as burnt lime; which every one knows is not the caſe. If the lime be well covered, ſo as not to admit any fixed air to come in contact with it, it may be kept a conſiderable time without ſenſibly loſing its binding power; but I have known mortar that had not been kept nearly ſo long as Muratore recommends from Vitruvius, which would no more bind than ſand.

Though our young ſtudent's notions be agreeable to the common opinion, I am not diſpoſed to aſcribe the binding of mortar in a wall, wholly to the fixed air (carbonic acid) it reabſorbs. I am rather inclined to think, that a conſiderable proportion of the pure or cauſtic lime concretes or forms a chemical union with the ſilicious particles in the ſand, which excludes the readmiſſion of fixed air; and that the particles of lime which actually reabſorb fixed air, and return to their ſtoney ſtate, are ſuch as have not come in contact with ſand ſo as to form a chemical union. This is only propoſed as a conjecture; but I wiſh our chemiſts would turn their attention to the ſubject. They might ſolve the queſtion by aſcertaining whether a hundred grains of lime in old hard cement, which had never been adulterated by ſouring, contained the proportion of carbonic acid uſual in limeſtone, or even in old cement that had been weakened by ſouring. I am inclined to think the proportion of fixed air in cement that had never been ſoured will be found conſiderably leſs than in limeſtone, or in cement that had undergone that pernicious operation.

I remember when the port, and part of the town wall of Stirling were taken down, they appeared externally like a heap of looſe rubbiſh from the decay of the external facing of ſtones. But when they got into the inſide, it was found to be a ſolid rock of cement, intermixed with chips of whinſtone; and the cement ſeemed the hardeſt of the two. They were obliged to blaſt the whole with gunpowder, which proved a very long and laborious operation.

In building theſe walls, they ſeem firſt to have laid the two external faces, and then to have filled up the interval with chips and [illegible] We are entitled to conclude, that ſuch walls were conſtructed

ſtructed before the abſurd practice of ſouring was invented, becauſe no walls of ſuch ſolidity can be produced in whoſe conſtruction this practice was employed. I do not mean to diſpute Muratore's great ſkill in laying his ſtones in a proper manner, or even in clenching and binding them by croſſing, and other means of art, in the execution of which there is no doubt but he may be powerfully aſſiſted by the maſon word; but I defy him to produce a ſingle example of his *foured* walls, which poſſeſſes half the ſolidity of ſome of the old *unfoured* walls, where the ſtones have no other binding but the cement. In fact, as to ſtrength and ſolidity, the old *unfoured* walls as far ſurpaſs the modern *four* erections, as the latter do a houſe of cards.

I have no intention of entering into a controverſy concerning the merits or demerits of Mr Loudon's book, which I never peruſed. But having ſeen the abſurd practice of ſouring, which is beginning to ſink in eſtimation, and would have ceaſed long ago had people known how to manage their mortar without having recourſe to it, propped by the reſpectable names of Adams and Vitruvius, recommended by the profeſſional experience of Muratore, and deriving additional authority from your Magazine; I confeſs when I ſaw ſo many buttreſſes combined to ſupport a tottering fabric, I could not be ſilent, but was irreſiſtibly impelled to lift up my feeble voice againſt it.

In practice, the humble diſciples of ſuch eminent philoſophers as Dr Irvin, have no chance when they come in competition with profeſſional men like Muratore. Often have I recommended the Doctor's mode of making and applying the mortar, to gentlemen who had conceived a paſſion for the mortar-tub, and even quoted the principles and practice of my maſter to bear me out; but, unfortunately, all I could ſay proved ineffectual. The gentlemen I addreſſed conſulted their *Muratores*, who alarmed them with bliſtered walls, tumbling buildings, in whoſe ruins the builders were likely to be cruſhed to atoms. To theſe alarming circumſtances was added a moſt long and tremendous account of loſs of lime, of labour, and of building, which vaniſhing from the graſp of the builders, if it did not break their bones, would infallibly leave them nothing on which to build but 'the baſeleſs fabric of a viſion.'

When all theſe *items* were reduced to pounds, ſhillings, and pence, which ſuch profeſſional gentlemen as your *Muratore* never failed to repreſent as inevitable loſs, to be incurred in conſequence of deviating from their four ſyſtem, can we wonder that honeſt farmers, or even lairds, ſhould be alarmed, and ruſh into abſurdity in order to ſhelter themſelves from riſk?

In fact, the philoſopher is like a ſharp point of ſteel, which

can only occaſionally make a ſlight puncture on the intellect even of a laird. But your profeſſional men, like Muratore, by conſtant and perſevering percuſſions, ſoon cloſes up the puncture; and even hammers the whole maſs into any ſhape they may find moſt convenient.

Having ſtated, Sir, a practice by which ſouring was wholly ſuperſeded, I hope no more of your pages ſhall be polluted by ſouring, unleſs your correſpondent Muratore be prepared to bring forward much ſtronger arguments in its favour than any he has adduced. My opinion is that he cannot do this, and will only expoſe himſelf by the attempt. He refers to authorities. I refer to facts, which are as open to his inſpection as to mine. And I have the honour to remain, Sir, your obedient humble ſervant,

Edinburgh, 12th June 1805. ANTI-SOURING.

FOR THE FARMER'S MAGAZINE.

On the modern Improvements in Agriculture, as they affect the Price of Grain.

WE have heard of improvements in this art that did not render the ſoil more productive: but I have no view towards ſuch ideal matters in the following paper; my views are directed and confined to thoſe improvements, of later years, by which the earth has been rendered more productive for the ſupport of mankind.

Whatever increaſes the produce of the earth, may be admitted to have a tendency to reduce the prices of that produce; yet I have known reſpectable authority quoted for the following maxim, viz. 'That all our improvers of the ſoil raiſe the prices of corn!' An opinion that has the air of paradox, and yet has met with much countenance. I have no private intereſt in diſcuſſing this opinion; and at one time, reflecting on the high expences attending modern culture, I felt inclined to adopt it; but, on particular and mature reflection, it appears to me an error, which, for the good of mankind, ought to be refuted. It has an obvious tendency to throw diſcouragement or odium on the moſt intelligent and [illegible] of the ſoil, a claſs of men to whom [illegible] been generally underſtoo[illegible] enjoyed the fruit[illegible] been viſited [illegible], and in more [illegible] modern and [illegible] a ſtrong ten-

It

It is certain, that by increaſing the groſs produce of corn or grain throughout the kingdom, the prices would be reduced, provided that all other things remained unaltered. Now, by cleaning foul lands, enriching poor ſoils with new manures, and bringing barren lands into culture, there has been much done to enlarge that groſs produce by our modern improvers.

But the price is regulated, much more by the *marketable ſurplus*, after ſeed and bread have been deducted by the farmer, than by the *groſs amount* of corn produced; and, in this reſpect, the good effects of modern culture are undeniable. For, in clean, rich lands, much leſs ſeed is required, and fewer hands are able to manage an equal extent of ground; therefore, by ſaving the ſeed, and the grain uſed in the farmer's family, as is done in well dreſſed lands, with improved modes and implements, there muſt remain a larger ſurplus for the market, which has an undoubted effect to keep down the prices.

If liberal men, who delight in improving their lands, have incurred uncommonly heavy expences, it may be ſuſpected that ſuch men will combine, and endeavour to indemnify themſelves by raiſing the prices; and that ſpeculators, who have ſunk money in falſe ſchemes of improvement, will readily join them in this effort. We may admit the ſuppoſition, and yet, conſiſtently, deny the concluſion. Theſe men have, in all caſes, *followed* the markets, without, in any one inſtance, being able to *lead* them. In fact, the effects of real improvements reſemble thoſe of Sir Richard Arkwright's extenſive machinery, which enabled him to underſell others. The profits of good management, well choſen implements of huſbandry, and judiciouſly applied manures, are always greater, at the ſame prices, than thoſe which reſult from an inferior ſyſtem, in a courſe of years. This may ſerve as a full anſwer to the above mentioned idea, too raſhly entertained by many, againſt intelligent improvers. With regard to ſpeculators, did ever any of them ſucceed in leading the markets of grain? Have they not, for the moſt part, been puniſhed for their folly and raſhneſs, by the ſequeſtration and ſale of their eſtates? No claſs of men are more jealous of theſe ſpeculative pretenders than decent practical farmers, who, ſo far from entering into concert with ſuch men, have no confidence in any thing they ſay or do.

oroving farmers who, beſides grain, raiſe and bring to mar-
her articles of ſubſiſtence, muſt be allowed to have merit
oing, for the purpoſes of reducing the prices of grain.
rs, who find ample ſupplies of potatoes and other vege-
for the ſubſiſtence of mankind, and alſo quantities of
will not purchaſe ſo much grain as they would other-

wiſe have done; nor will they give ſo much for what they buy, as they muſt have done, if there had been a more extenſive demand for the ſingle article of corn. The difference betwixt ancient and modern times, in this particular, is great indeed!

It may be aſked, therefore, why the prices of grain, in money, are not much lower, by all theſe means, than in our forefathers' days? This queſtion admits of the following ſatisfactory anſwer, viz. That the value of money has fallen ſo much, as to give no certain index of the comparative real value of corn. I recollect perfectly that the price of labour, in a certain diſtrict, about twenty years ago, was not above a third part of what it is there at preſent, eſtimated in money; yet the value of the labour was really much the ſame as it is now, and it is the value of the money that has fallen. But by this fact, taken as a rule, the labourer who receives three times the old wages, might have his grain equally cheap as before, and pay three times the old price: yet this has not happened, for it has not riſen in that proportion; and, when we reflect on the greatly increaſed population, which has created new and more numerous purchaſers, we may be ſatisfied, that to anſwer theſe increaſed demands, an increaſed ſurplus of marketable grain is neceſſary. We may alſo remark, that an increaſe of luxury among the conſumers, has effected more waſte, or at leaſt a greater conſumpt, than was known in former times. And when the numberleſs carriage and ſaddle horſes, now moſtly fed on corn, are taken into account, along with our increaſed luxury, and augmented population, together with the enormous advance in the price of land, implements, ſtock, and labour, it muſt appear aſtoniſhing to every man of ſenſe, that corn can be afforded for the late and preſent prices. It is impoſſible to believe that it could be afforded at theſe prices, if the productive improvements of the ſoil had not operated, in an important degree, to furniſh greater ſupplies, and keep the prices within moderate bounds.

I am of opinion that leſs breadth of land is ſown with corn, now, than formerly, becauſe much land is occupied with other valuable crops for the uſe of man, which our anceſtors did not cultivate; yet I believe that the groſs annual produce in grain exceeds what it did anciently, and that the marketable ſurplus at preſent is not much leſs than double the ſurplus that our forefathers enjoyed, and it is this marketable ſurplus that determines the price; the demands being ſuppoſed equal, and the value of money alſo. But that ſurplus is undeniably increaſed, by our modern productive improvements, at every ſtep, from ſeed time, to market day. There is leſs ſeed wanted for an acre; fewer hands can till the ground with better effect; and there is leſs

conſumpt

conſumpt of grain therefore in the farmers' houſes; and under an improved culture, the ſoil being clean and rich, the returns are probably nearly doubled on an acre. I admit that corn muſt be given to the farm horſes, and that ſome is uſed in feeding cattle and ſwine, in neither of which ways our anceſtors employed their grain to any great extent; but ſenſible farmers do not waſte ſo much corn on their horſes as is generally believed; and as to what is uſed to feed cattle and ſwine fat, it returns to market in another ſhape, and contributes, in this latter ſhape, to the ſubſiſtence of the public. But the poſt, ſaddle, and carriage horſes, conſume an immenſe quantity of corn; and if the marketable ſurplus were not enlarged, to anſwer them, and the numbers and luxury of an increaſing population, it would not be poſſible to find corn for our modern markets. Our importations, great as they have been in ſome years, and exhauſting to the treaſure of the kingdom, are inconſiderable, compared with our immenſely extended internal demands.

I believe it may be as near the truth as any other ſuppoſition that occurs to me, to ſtate the extent of lands now under corn, leſs than the old extent under crop, for the reaſons mentioned above, in the proportion of three to four. Labour was formerly cheap in compariſon, and work and implements imperfect. I ſhall therefore ſtate the hands employed on an acre formerly, more numerous than at preſent, for the culture of corn, in the proportion of three to two; which infers a proportional conſumpt of grain in the houſe of the farmer, for each equal or given extent of land ſown with grain. Foul land, eſpecially if poor alſo, requires more ſeed than ſuch clean land, at leaſt in the proportion of four to three, on an equal extent. And if we allow a ſixteenth of the crop, over and above the drawn corn, for the modern farmer's work horſes, we have then obtained ſome data, on which to draw out a table, ſhowing a ſketch of the comparative groſs produce, and comparative marketable produce of corn, in ancient and in modern times. Theſe hypothetical data are not offered as certain; but only as reaſonable, and probably approximating towards the truth.

Table drawn up according to the foregoing Data, ſhowing the comparative Extent or Breadth ſown in Corn, the Quantities of Seed, the Conſumpt by the Farmers, the Groſs Returns, and the Marketable Surplus, in Ancient and in Modern Times.

In former Times.		In improved Farms.	
Extent of land ſown with corn, ſay	40 acres.	Proportional extent now in corn,	30 acres.
Seed, in foul land, poor for the moſt part, at 1⅓ boll per acre, -	53⅓ bolls.	Seed for 30 acres cleaned and manured land, at 1 boll each, -	30 bolls.
For bread and all kinds of conſumpt in the farmer's houſe from grain, anciently not much under ⅓ of the whole crop, ſometimes above it, ſay - - -	70 bolls.	Proportional allowance for 30 acres to find bread and other conſumpt for the farmer, in grain, in the reduced ratio ſtated formerly, -	35 bolls.
For horſes no corn allowed, except the light grain.		For horſes 1-16th of the groſs produce, beſides the light grain, - -	15
Drawbacks for ſeed, bread, &c.	123⅓ bolls.	Drawbacks for ſeed, bread, and horſes, - -	80
Groſs produce from 40 acres of corn, in the old management, at 4 ſeeds, (ſeed 53⅓ bolls), - - -	213⅓ bolls.	Groſs produce from 30 acres of corn in the improved management, at 8 ſeeds, (30 bolls ſeed), -	240 bolls.
Surplus for market, -	90 bolls.	Surplus for market, -	160 bolls.

By this table, admitting a greater extent under corn in the old ſyſtem, yet the groſs returns of grain appear larger now, as 240 to 213⅓; and the marketable ſurplus, which ought to regulate the price, appears to exceed the old ſurplus, as 160 to 90. The exact proportions it is impoſſible to aſcertain; but the principles on which this computation is founded, can hardly be called in queſtion by any well informed perſon. And if on leſs ground we have now more ample ſupplies of corn in the market to anſwer the demands for bread, and the immenſe demands for carriage and ſaddle horſes, and for porter, ale, beer, ſpirits, pot barley, and ſtarch,—to what, except to our improved agriculture, can this reſult be referred? This ſyſtem has brought much uſeleſs land into full produce, enriched the barren outfields, eradicated weeds, introduced economy in ſeed and conſumpt ſo far as the farmer is concerned, and highly increaſed the fertility of the lands preſently in corn; while to theſe benefits have been alſo ſuperadded, the advantages of excellent productive green crops, highly uſeful, directly or indirectly, for the ſupport of mankind. Let us beware, therefore, of imputing the high prices of grain, if ſuch there be, to our improved ſyſtems of agriculture. Were it not for theſe improvements, we ſhould not have poſſeſſed the means of ſubſiſtence under the immenſely

menſely increaſed demands for grain in all its forms. Still leſs could we have enjoyed the means of extending the comforts of life in the manner which has been effected by a mixed huſbandry, including a rich variety of other produce beſides grain, particularly fat cattle and ſheep, vegetables, and dairy produce of every kind, together with the materials of woollen and linen fabrics, of the tan yard, and wood of every deſcription. An enlightened view of the increaſing returns, in all theſe ways, for the comfort and ſubſiſtence of ſo many millions of people, inhabitants of the Britiſh empire, muſt be ſeen with ſatisfaction by every wiſe and good man. For my own part, I am thoroughly convinced, that (under God) we are indebted to our productive improvements in agriculture, for anſwering, to ſuch an extent, our immenſe demands for grain; and frequently averting from theſe lands the horrors of famine,—otherwiſe, in my opinion, inevitable. And ſo long as my heart expands with pleaſure in contemplating the riſing population and comforts of this great empire, I ſhall not ceaſe to eſteem thoſe men who promote her agriculture, and lay this foundation of her ſubſiſtence, her peace, her comforts, and all her uſeful arts.

Upper Annandale, 8th January 1805. ALPINUS.

NOTE.

The Conductor's ſentiments on the above intereſting ſubject are very much in uniſon with thoſe expreſſed by his reſpectable correſpondent; as a proof of which, reference is made to Vol. I. p. 241, where, under the character of a *Rural Inquirer*, he ſtated his opinion concerning the immenſe benefit received by the public from the modern agricultural improvements. It gives the Conductor much pleaſure that the crude ideas then thrown out have been ſatisfactorily illuſtrated by an abler hand; and he earneſtly requeſts a continuance of this gentleman's correſpondence. N.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Benefit of uſing Caſt Metal for the Hinges of Gates.

SIR,

I BEG leave to intimate, for the information of your readers, that I have recently tried caſt-iron for the hinges of wickets, which is ſo light, and at the ſame time anſwers the purpoſe ſo well, that I think theſe circumſtances muſt be a great means of extending the uſe of caſt-metal for gates.

Meſſrs Dearmans, Francis & Co., Eagle Foundery, Birmingham, have the patterns; and the weight and value of the caſtings are as follows:

Set of hooks and thimbles for a wicket, 3¾ lib., at 3½d., *thirteen pence.*

Theſe have been attached by me to a ſtrong wicket weighing 75 lib., and withſtand all violence in ſhutting the wicket.

The method of putting on the thimbles is the ſame as for thoſe of the gates; but the hooks have ſhafts for driving into the poſts, which ſhould be done with a wooden mallet.

I truſt that many of your readers will be induced to try theſe hinges, as it may be done at ſo trifling an expence. I am, Gentlemen, yours, &c.

Oſweſtry, 14th March 1805. THOS. N. PARKER.

FOR THE FARMER'S MAGAZINE.

An Account of the Moſs Improvements of John Wilkinſon Eſquire of Caſtlehead in Lancaſhire. By Sir John Sinclair, Bart.

HAVING heard much of Mr Wilkinſon's moſs improvements in Lancaſhire, and being deſired, by that ſpirited agriculturiſt, to examine them upon the ſpot, I was tempted to quit the line of the great weſtern road from Edinburgh to London, and from Kendal to go to Caſtlehead, a place ſituated on that arm of the ſea which divides the diſtrict called Furneſs, from the reſt of Lancaſhire. It is well known that the ſea overflows there an extenſive tract of country, which Mr Wilkinſon, and ſome other friends to improvement, would gladly have reſcued from its preſent miſerable ſtate; but however practicable the plan was conſidered to be, yet various obſtacles of a legal, a local, and a perſonal nature, have hitherto prevented its being carried into effect. *

On approaching Caſtlehead, the appearance of the country denotes, that a ſpirit of improvement could only have been recently introduced into it. The roads are in ſome places very ſteep, going over the ridges of hills, inſtead of being conducted round them.

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* In the General View of the Agriculture of the County of Lancaſter, publiſhed by the Board of Agriculture, anno 1795, there are ſome intereſting obſervations on the embankment of Lancaſter ſands, from which it would appear, that at an expence of from 150,000l. to 200,000l., about 38,710 acres might be recovered from the ſea, which are of no value in their preſent ſtate, but which, if improved, would ſoon become worth 1,348,400l. Mr Wilkinſon offered to ſubſcribe 50,000l. for carrying on this great national undertaking.

them. Large tracts of moſs land are ſeen in a ſtate of nature. The fields, whether encloſed for graſs, or cultivated by the plough, (at leaſt ſo far as it is poſſible to judge from their preſent appearance), are in much the ſame ſtate that they probably were a century ago.

Mr Wilkinſon was originally led to think of acquiring any property in that neighbourhood, with a view of making iron from the peat with which the country ſo much abounded. But as that mode of manufacturing iron was attended with great diſadvantages, from the quantity of fuel required, and the difficulty of procuring it in ſufficient quantities, more eſpecially in rainy ſeaſons, he was thence led to give up that attempt, and to conſider what other uſes could be made of ſo extenſive a tract; in particular, whether it could not be made capable of cultivation.

Nature of the Moſs.—Nothing could be more diſcouraging than the general nature of the moſs he undertook to improve. It was what is called in Scotland '*a flow moſs.*' On an average, about five feet of it conſiſts of a ſoft, ſpongy, light kind of peat, which makes very weak and bad fuel. Below that ſtratum, the peat is black, and of excellent quality. The depth of this ſecond ſtratum is very great, in many places fifteen feet, and even more. The bottom, where it can be got at, is a fine, ſtrong, blue clay, which is unfriendly to vegetation until it has been long expoſed to, and ameliorated by the atmoſphere. Calcination in ſmall heaps with peat, fits it for a top dreſſing on graſs lands; or this kind of clay might be made very uſeful, by ploughing it in, mixed with lime. In the moſs, conſiderable quantities of old trees are found, principally oak and fir, and often in ſuch a ſtate of preſervation, that they can be uſed for various purpoſes. They ſeem all to have been thrown down by the force of ſome violent tempeſt, by a general or partial deluge, or by ſome great convulſion of nature.

The moſs, in its original ſtate, was ſo ſpongy, that, ſince it was drained, it has ſubſided conſiderably, and in ſome places has ſunk from three to four feet.

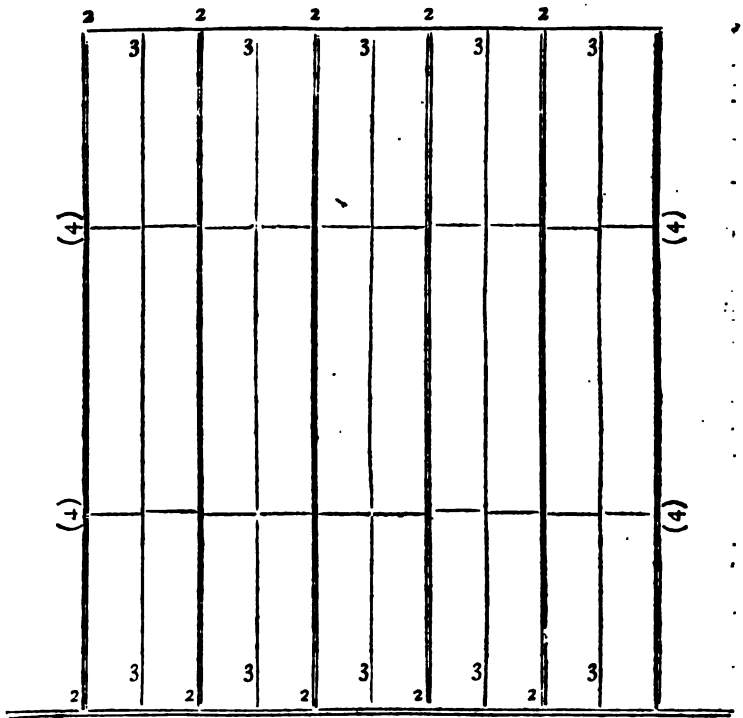
Original Value.—From this account of the nature of the moſs, it can hardly be ſaid to have had any original value whatever, excepting for fuel. The liberty of paſturing on ſuch land, (which could only be done in froſty weather), has been offered for ſo ſmall a conſideration as three halfpence per acre; but nobody thought it worth their while to take it even at that rate. A penny per acre therefore, is a high eſtimate for heath, only to be come at during a long froſt.

Plan purſued.—The firſt attempt to improve any part of this tract was *anno* 1778, when ſome general drains were made; but being cut at too great a diſtance from each other, the moſs was not

not rendered ſufficiently dry. The ſcale of cultivation, when firſt attempted, was ſmall, only to the extent of about four or five acres. The ſyſtem purſued was as follows. The ſurface was breaſt-ploughed, and then burnt. Sod kilns were erected to burn lime to be ſpread on the moſs, the ſurface of which had been thus cleared off. But the plan did not anſwer, as the proper management of theſe kilns was not then underſtood. It was neceſſary, therefore, to follow a different plan, the particulars of which it is proper next to detail.

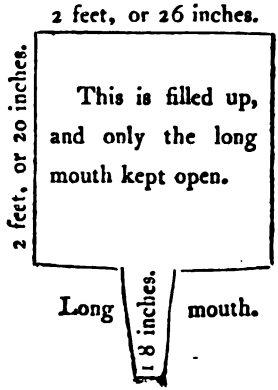
Drainage.—It is in the firſt place eſſential to make a ſufficient number of *large open drains*, both to carry off the ſtagnate water, and to promote a conſolidation of the moſs. There muſt alſo be *covered ſmall drains*, made with ſods, which have been dried for about three weeks or more, according to the ſeaſon. In ſoft, ſpongy moſs, the covered drains ought to be at firſt nine yards diſtance, and when the moſs is conſolidated, covered drains muſt be made, firſt between, and afterwards acroſs the covered drains that are firſt made.

The following ſketch will explain the nature of the ſyſtem that has been found to anſwer beſt. No. 1. denotes the open main drain, or diviſion fence; No. 2. the firſt covered drains, at nine yards diſtance; No. 3. covered drains made between No. 2., or at 4½ yards diſtance, and executed about two years after No. 2.; No. 4. are covered drains quite acroſs the field, and are made when the moſs is pretty well ſettled. They ſhould be from a foot to eighteen inches below, or deeper than No. 2. and 3., and, if properly placed, will complete the ſolidity of the moſs.



(1) The main drain or diviſion fence.

The drains marked No. 2, are from 2 to 3 feet wide, and 2 feet deep. Theſe drains lye open ſometimes for a year. The ſods are dried for covering the long-mouthed drain, as it is called, which is 18 inches deep, and 4 inches wide at the bottom. The nature of this ſort of drain will appear from the following ſketch.



It is imagined by ſome, that moſs land can be made too dry, but that has not been found to be the caſe at Caſtlehead. The moſs being ſo deep, there always comes a damp from it, which keeps the land moiſt enough.

Roads.—Next to draining, roads are eſſential, and Mr Wilkinſon has been extremely ſucceſsful in making them good over the very ſofteſt moſs.

Inſtruments uſed.—The firſt inſtrument to be mentioned, is called *a tom ſpade*, uſed for cutting the drains. The ſecond a plough, of the nature of the common ſwing plough; but the coulter is ſteeled, and the ſock, which is 14 inches broad, is alſo ſteeled, and both are kept quite ſharp. This inſtrument will not do ſo much work as the Cambridgeſhire fen plough per day; but being ſimpler in its conſtruction, it is better calculated for general uſe, more eſpecially in a country where ſuch improvements are to be introduced. With this plough they can cut as thin as an inch.

Beſides this plough, an inſtrument has been contrived for croſs-cutting the ſurface previous to its being ploughed, which is of great ſervice, by dividing the ſods into ſmall pieces, and making them either more portable, or fitter to burn.

The only other peculiar inſtrument is a *horſe patten*, to be uſed when the moſs is ſoft. Pattens are not neceſſary for the fore feet of horſes, but are often required for the hind feet, more eſpecially when the moſs is firſt ploughed. After many trials, a patten of a circular form has at laſt been hit upon, which anſwers the purpoſe effectually. Perhaps a ſimilar contrivance might be of uſe for oxen, or for horſes with bad feet. Before this invention, the ploughs were wrought by the ſtrength of men till the moſs had conſolidated.

Rotation of crops.—Before the land can be laid down with graſs ſeeds, the following plan, after the draining and other previous operations have been completed, is purſued. *Firſt year*, burn the heath, with any hillocks which were cut off in order to make the ſurface plain, and fit for ploughing. Plough the moſs 7 inches deep, then cover it with clay or ſand, or mould (1000 ſingle horſe carts per Lancaſhire acre), as any of theſe articles may lye moſt convenient for carriage, which is the point to be principally attended to. This year turnips may be ſown, if the ſeaſon and other circumſtances are favourable. *Second year*, after a ſlight ploughing, ſow oats, and the crop will in general be excellent. *Third year*, another ſlight ploughing; burn any clods that may appear, and lay down with turnips in drills. *Fourth and fifth years:* Then a fourth ploughing for another crop of oats. When the oats are cut, ſpread a light compoſt over the ſtubble, and after

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a ſlight ploughing, ſow winter rye, which always produces a good crop; and in April, when the froſts are over, ſow graſs ſeeds on the winter rye, and roll them in. The land is thus brought into graſs, in perfect good order, and may be paſtured with much advantage for five or ſix years, when the graſs may be renewed, without ploughing up the land again, by which the drains might be diſturbed.

The advantage of this ſucceſſion is, that you are pretty certain of four or five good crops (two of oats, one of winter rye, and one or two of turnips), which will pay a conſiderable ſhare of the expence of the improvement.

Beſides theſe crops, barley has been tried, and anſwers well; and the potatoes raiſed on moſſy land, are of a quality peculiarly excellent. Coleſeed would certainly produce good crops.

Expence of the above proceſs.—No particular eſtimate has hitherto been made of the expence. The covering, at the rate of a 1000 cart loads per Lancaſhire acre, may be calculated at 8l. 15s., or 2d. per cart. The expence of draining, making roads, &c. muſt depend upon various circumſtances.

Kind of Oat.—The beſt kind of oat, for the firſt crop, is the Scotch dun, or the *Nanny pye oat*. Afterwards a heavier ſort may be tried.

Graſs ſeeds.—Red clover does not anſwer; and the land, when laid down to graſs, produces white clover of itſelf. The following has been found the beſt proportion of graſs ſeeds, 10 lib. of trefoil, 10 lib. rib-graſs, and 6 buſhels of hay ſeeds.

How to renew the graſs.—In the courſe of five or ſix years, the graſs is very apt to get foggy. It may be renewed by the following proceſs. Spread, at the rate of 40 Lancaſhire, or 120 Winchester buſhels of hot lime, per Lancaſhire acre, and as hot as poſſible, in the month of July. Immediately after liming, run it over with a ſhort ſharp-toothed harrow. The hot lime and the ſun will deſtroy the fog, and new and finer graſs will ſpring up.

What Manures.—Neither lime nor dung had any material effect upon the moſs, till it was reduced to ſoil. The ſtagnate water in moſs, called in Lancaſhire *aidle water*, is highly pernicious, and is injurious to animals that drink any water with which it is mixed. By ploughing the moſs often, expoſing it to the influence of the atmoſphere, and mixing it with other ſubſtances, the *canker*, as it is called in ſome diſtricts, is extirpated. The froſt has a great effect in reducing moſs to ſoil; and after the moſs is froſted, the influence of the ſun is beneficial. The moſs muſt be rendered dead matter, before it can become productive. Lime has then an effect, and dung ſtill more. But nothing has anſwered better than burnt clay. Low-canal field, containing about 4 acres,

acres, was manured with burnt clay at the rate of 80 ſingle horſe carts per Lancaſhire acre. It has ever ſince been mowed annually, and is the beſt meadow land for hay in the pariſh.

For turnips, the burnt aſhes anſwer particularly well; and it has been obſerved, that the fly never attacks the turnips where they have been manured with aſhes, more eſpecially if the ſeed has been pickled, as wheat uſually is, previous to its being ſown.

Shelter.—Birch, alder, plane, black poplar, and mountain aſh, thrive well on moſſy lands; and if, where quicks are planted, the moſs is properly mixed with clay or ſand, they will alſo thrive well.

Graſs, how managed.—The land muſt at firſt be tenderly dealt with; and it is in general much better to paſture than to mow it. Sheep have not been tried. The Highland ſorts are much liked, both as they are light, and feed quickly: but the Galloway are on the whole preferred, being tamer, and doing leſs miſchief. Sometimes young cattle from the neighbourhood are taken in to graze; and that plan pays well.

Preſent value.—For paſture, in its preſent ſtate, the new improvements would let at from 30s. to 40s. per Lancaſhire acre, and the land that was improved ſome years ago, at double that ſum.

Extent of the moſs improved.—Mr Wilkinſon has already improved, or is in the courſe of bringing into cultivation, no leſs a quantity than about *five hundred Lancaſhire* acres of this kind of ſoil.

Concluſion.—Such is the ſubſtance of the information I was able to collect regarding this great improvement, which, conſidering the unproductive nature of the moſs, the expence neceſſary to improve it, and the ſucceſs with which it has been attended, can hardly find a parallel in any part of the United kingdom.

Narrow-minded and ignorant people, I underſtand, have endeavoured to decry this great and important attempt. They ſay that Mr Wilkinſon might have bought, at a cheaper rate, the beſt land in Lancaſhire. Perhaps ſo. But Mr Wilkinſon muſt derive much higher ſatisfaction from the plan he has purſued. By ſo doing, he has furniſhed employment to numbers of induſtrious people;—he has raiſed great quantities of food for man, where nothing, but for his exertions, would have been produced;—he has ſhewn a noble example to his neighbours, if they chooſe to follow it;—and by augmenting the value of 500 acres of a barren waſte, from 2d. to 30s. per acre *and upwards*, not merely for a few caſual crops, but on the principles of ſubſtantial and permanent improvement, he is juſtly entitled to be ranked among the beſt friends to the agricultural intereſts of the country.

London, 25th April 1805.

TO

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Improvement of Moſs in the Iſland of Collonſay, one of the Hebrides.

SIR,

YOU are requeſted to inſert in your Magazine, the following extract of a letter from a friend in Iſlay, relative to the improvement of moſs land; and I have only to add, that the gentlemen therein mentioned, are juſtly entitled to be conſidered as true friends to huſbandry, conſequently as perſons who eminently promote national proſperity in the ſphere wherein they are placed.
I am, yours, &c. D. M.

'THE reluctance of people in general to improve moſs land, induces me to requeſt that you will give a place in your uſeful and widely circulated Magazine, to the following ſhort account of a very extenſive and ſucceſsful undertaking of that nature by Mr John M'Neill.

'On two of his farms in the iſland of Collonſay, he improved two pieces of moſs land; one containing 5 acres 1 rood and 37 falls, which he drained, levelled and ploughed the harveſt preceding; and the other 1 acre and 37 falls, all Scotch meaſure, in the manner recommended by Mr Smith of Swinridgemuir, and planted the whole with potatoes. The former yielded a crop of 20 tons per acre, and the latter 27 tons 16 hundred weight, alſo per acre.

'Mr M'Neill is a man of much enterpriſe, and takes every opportunity of adding to the comfort of the inhabitants of the iſland of Collonſay, often ſacrificing his intereſt to ſo deſirable an object. His brother Mr Malcolm M'Neill, who was agent to Colonel M'Neill, is equally aſſiduous in that reſpect; and, from theſe cauſes, few or no peaſantry in the Highlands of Scotland enjoy more real comfort, notwithſtanding the various diſadvantages they labour under, owing to their inſular ſituation, many of whom, from the encouragements held out to them, might otherwiſe be tempted to adventure to foreign climes, uncertain what they might meet with there.

'The population of Collonſay not affording ſufficient encouragement for a reſident ſurgeon, that want is but little or not at all felt by the inhabitants, from the attention of Mrs M'Neill, who always has a large ſupply of medicines, which ſhe adminiſters with much ſkill and judgement, ſeldom or ever miſſing an opportunity of ſeeing them in their illneſs, and in every reſpect relieving their wants. To have been an eye-witneſs to the parental care of theſe people to the comfort of the inhabitants, was highly gratifying, and worthy of imitation.'

[Sir

[Sir George Stuart Mackenzie of Coul, Bart., with a view to benefit agriculture in a department hitherto too much neglected, having authoriſed us, in the firſt Number of this Volume, to offer a gold medal, of five guineas value, to the authors of the beſt eſſay on the ſtoring of turnips and ruta-baga, ſeveral eſſays were in conſequence tranſmitted to us. After an attentive examination of theſe eſſays, and taking the opinion of a gentleman of undoubted abilities, whoſe practice in the culture and management of turnips may be conſidered as more correct and extenſive than almoſt that of any other profeſſional man in this country, we have adjudged the premium to the author of the following eſſay. It becomes us at the ſame time to ſtate, that Sir G. S. Mackenzie has, on this occaſion, not only done great honour to our Magazine, by bringing forward ſuch an intereſting diſcuſſion through its medium, but alſo contributed much to diſſeminate information on a ſubject, which confeſſedly is of much importance to the breeders and feeders of ſtock, particularly in the northern parts of this iſland, where at all times the weather is variable and tempeſtuous, and often accompanied with ſuch heavy ſtorms of froſt and ſnow, that recourſe cannot poſſibly be had to the field, for a ſupply of food to the beſtial kept in the ſtraw-yard and feeding-houſes. Some other of the competition eſſays will, with the permiſſion of their authors, be inſerted in our after Numbers.]

FOR THE FARMER'S MAGAZINE.

Eſſay on Storing Turnips, which gained the Premium offered by Sir G. S. Mackenzie.

——res eſt non parva.

THE cultivation of turnips, on light ſoils, may be conſidered as one of the principal improvements introduced into the huſbandry of this country. By this improvement, farm labour is much alleviated, being more diffuſed through the year. Land naturally of an inferior quality, and apt to get foul by annual and perennial weeds, is kept clean, and becomes better adapted for growing barley than what is originally of far richer quality. A large, if not a copious ſupply of manure is obtained; and arable farms not only maintain a greater quantity of live ſtock, but the quality of that ſtock is much improved; ſuch as are deſigned for ſlaughter being fattened with more facility, than by any other known method; and ſtock of every deſcription is kept on through winter in a growing ſtate, and puſhed to maturity,

turity, with much more expedition, than when allowed to become hide-bound and weakly, by being fed with ſtraw only, during that ſeaſon.

But, that theſe important advantages may be enjoyed in their utmoſt extent, no inconſiderable degree of attention is required on the part of the farmer. It is by no means ſufficient, that he raiſes a weighty crop of turnips, that he provides a ſuitable ſtock of ſheep or bullocks to conſume them, and that he apportions the daily allowance, ſo as the crop may fatten theſe, or ſerve as a kind of condiment to their ſtraw through the ſeaſon. In North Britain, the winter cold is ordinarily ſo intenſe, that turnips cannot be drawn from the ground; nor, ſuppoſing that difficulty overcome, are they nouriſhing food for cattle whilſt their juices are in a frozen ſtate: beſides, if the crop has attained maturity, great part of it will be completely deſtroyed; a misfortune which every one muſt conſider as of no trivial nature, who reflects, that it often occaſions the loſs of all the extra condition to which the feeding ſtock has been brought, and renders it impoſſible to fatten them off that ſeaſon. To this deficiency in his immediate profits, the farmer has to add an incalculable loſs in the derangement of his ſyſtem, in conſequence of being deprived of the ordinary ſupply of manure. He muſt therefore take the precaution of preſerving the turnips from deſtruction by cold, and of ſecuring a regular ſupply as wanted, and that in an edible condition.

The methods of accompliſhing this, muſt vary according to circumſtances, ariſing from the ſoil and climate, the mode of cultivation, and of conſuming the crop, and the ſpecies of turnip raiſed.

1*mo*, When grown on wet land, the crop cannot be eaten off; and on this kind of ſoil, it is much more liable to rot in winter, than when raiſed on what is termed ſound turnip land; conſequently there is a neceſſity for drawing them much earlier in the ſeaſon.

2*do*, Thoſe, again, in high-lying inland ſituations, or northern climates, are expoſed to much more intenſe cold, than ſuch as are grown in maritime diſtricts, or the ſouthern parts of the iſland.

3*tio*, When turnips are ſown early in the ſeaſon, or when they are raiſed to a large ſize, they are ſure to become cork-hearted by the beginning of winter; and in that ſtate, are exceedingly apt to be hurt by wet and cold. It is partly for theſe reaſons, that in Norfolk, and the ſouthern counties, their turnip ſuffers little in winter comparatively with ours in Scotland. The far greater part of the turnips in that diviſion of England, is

ſown either broadcaſt, or in drills, with intervals of only 12 inches; ſo that the horſe-hoe is entirely excluded; conſequently the bulbs never attain the ſize of ours, drilled with intervals of 30 inches, and dreſſed both by the hand and horſe-hoe.

In this country, too, it is thought neceſſary to have the turnips ſown by the middle of June, or as ſoon after as the ſowing can be accompliſhed. If any part is purpoſely delayed after the end of that month, it is only with the view of avoiding the hurry ariſing from having a great breadth to clean at one time. But we find one of the very firſt agriculturiſts in the ſouth of England (Mr Ducket at Eſher) ſowing his turnips ſo late as the 10th of Auguſt. * Sown at that ſeaſon, the plant does not come to maturity, even in the mild climate of Surry; of courſe, it behoves to be uncommonly hardy. The writer of this eſſay every year ſows an acre or two towards the end of July, with narrow intervals, and ſets out the plants much cloſer than uſual, and he finds that very few of them periſh in winter.

4*to*, When turnips are eaten off the ground, little can be done in ſecuring the crop from froſt. But there is ſome reaſon for ſuppoſing, that it is only in ſome diſtricts of Scotland that this can be practiſed with ſucceſs; at leaſt, by means of hurdles or nets. In the genial climate of the low lands of Haddington and Berwickſhires, where ſnow ſeldom lies longer than a few days, and where little rain falls, the practice has indeed been thought extremely beneficial. But we are not to conclude from this, that it is equally advantageous in diſtricts where ſnow lies long, and, even when at laſt it diſappears, is infallibly ſucceeded by rainy weather, ſo that the ſheep are ſtanding to the belly either in ſnow or mud.

5*to*, There is great difference in the hardineſs of the ſeveral kinds of turnips cultivated. The Tankard turnip is the beſt adapted for eating off, the bulb growing almoſt wholly above ground; but it is found, for the ſame reaſon, to be the moſt liable to ſpoil by froſt; therefore, muſt be either conſumed in the beginning of winter, or ſtored up. The Red Top was formerly thought the moſt hardy, but is leſs palatable to cattle, on account of the greater pungency of its rind. The Green Top, and a kind lately diſcovered, of a form rather oblate than ſpherical, are now ſaid to be the ſpecies beſt adapted for reſiſting our winters.

But none of theſe, when arrived at maturity, can be depended on for withſtanding the wet and cold of this climate, unleſs previouſly drawn from the ground, and put under cover. The common Dutch, or Orange turnip of the gardens, is more durable. It requires no other treatment than the field kinds, excepting

* See Houſeman's Tour.

cepting that it ſhould ſtand cloſer on the ground, both in the drills and intervals, ſince it does not attain the ſame ſize; and as it is ſown at the ſame ſeaſon, it affords more time to work the land than a ſpecies which requires earlier ſowing. Though it rarely gives an equal weight of produce per acre, we are not thence to infer that the quantum of nouriſhment is leſs, as it is much more ſolid, and better reliſhed by animals of every kind. It muſt, however, be drawn from the ground before winter; for, although not ſo apt to ſpoil as the field kinds, it is no leſs liable to become corky.

But the ſpecies known by the names of Swediſh Turnip and Ruta Baga, is not in the leaſt injured by winter weather, however continued the rain, or intenſe the cold; and though a portion of the bulb be bit, or cut away, the remainder will continue freſh, and even ſend up a healthy ſeed ſtalk in ſpring. This root never becomes ſo large as the field turnip, therefore, ſhould be more cloſe on the ground; and, though the crop is leſs bulky, yet, as the ſpecific gravity is greater, and even that weight leſs juicy, the produce of nouriſhment of an average crop, on a given ſpace of ground, is little inferior. It has, however, one diſadvantage; it muſt be ſown three weeks earlier, conſequently, there is leſs time to clean the ground of root weeds; and, as its foliage is leſs umbrageous, annuals find leſs difficulty in maintaining their ground. But, as it bears tranſplanting tolerably well, the firſt of theſe objections is ſometimes obviated, by raiſing it in ſeed beds, and dibbling in the young plants where they are to ſtand for good, at the time of ſowing the common turnip. The ſame quality renders it of great uſe for filling up ſuch ſpaces in the crop of any of the other kinds as have failed. The bulk of its foliage too may be increaſed by extra manuring.

It is the opinion of many intelligent perſons, that Ruta Baga delights not in dry and light ſoils, like other turnips, but that it prefers a moiſt, heavy loam. Though the writer annually ſows an acre or two of this root, principally for his horſes, he does not find himſelf juſtified, from experience, to aſſent to this opinion. He has always found the one ſpecies as readily hurt by any exceſs of moiſture as the other. Both Swediſh and Dutch are alſo found to improve the quality of milk and butter, when given to cows, contrary to the nature of common turnip, which imparts to theſe a nauſeous flavour. And the writer ſpeaks from experience when he ſays, that much heavy work may be performed by horſes fed on theſe roots and hay, and the horſes ſtill be kept in prime condition; no winter food whatever giving a coat equal to this. Turnips, both Orange and Swediſh,

have this further to recommend them over potatoes as food for horſes, that there is no danger of giving them as many as they chooſe to eat at any time. In a crop of Swediſh turnip, there are always ſome of a white, and others of a yellow colour, but theſe are only varieties. The writer raiſes his own ſeed; and having once planted only yellow bulbs for this purpoſe, he found the turnips produced from the ſeed, partly yellow, partly white, as uſual, though no other Swediſh turnips were in blow for ſeveral miles around him.

The ſpecies called Turniprooted-cabbage is not unlike the Swediſh turnip, in ſeveral of its qualities, and in the appearance of its leaves. It requires to be ſown at the ſame early ſeaſon, bears tranſplanting, is never injured by the utmoſt ſeverity of winter; its root has a hard thick rind, and ſolid internal ſubſtance, and continues edible after its ſeed-ſtalk has attained conſiderable height. Indeed, it has been extolled, by ſome Engliſh agreſtical writers of conſiderable eminence, as the beſt of all the turnip kind for furniſhing ſucculent food late in ſpring. The writer tried the cultivation of this plant ſeveral years, both tranſplanting and ſowing the ſeed in drills, but never found it ſuperior to the Swediſh turnip in any reſpect whatever; in ſome it is inferior. It does not give an equal weight of crop; its root, inſtead of a ſolid bulb, uſually conſiſts of a number of branches or fangs, whoſe ſmaller ramifications have ſuch hold of the earth, that they cannot be pulled up by hand. It was therefore always found neceſſary to turn over the drill with a plough, and then ſhake out the roots; and, even in this way, many pieces were left in the ground, and much earth and manure adhered to thoſe taken away, which rendered it neceſſary to waſh them before they could be given to any kind of ſtock whatever. But never having ſeen it cultivated by any other perſon, the writer will not preſume to ſet his opinion up in oppoſition to that of ſo many firſt-rate agriculturiſts in South Britain, as have given Turniprooted-cabbage a character, as a green crop, ſuperior to every other for late ſpring food.

Both this and Swediſh turnip are complained of, as unfit for crones, or very old ſtock of any kind; becauſe their hard ſkin is apt to pull or break out the beaſts' teeth. But it is a fact, the truth of which any one may eaſily ſatisfy himſelf of, by ſtrewing on the ground a quantity of each kind mixed together, and turning on the beaſts, that ſheep, cattle, and horſes, prefer Orange and Swediſh turnips, and Turniprooted-cabbage to field turnip. And this holds good of the leaves and ſeed-ſtalks, equally well as of the bulbs. Of this the writer has had repeated experience. He uſually ſows a quantity of late turnip for ſpring

ſeed.

ſeed. Common, Swediſh, and Orange turnip, and Turniprooted-cabbage, blow at different ſeaſons; a quantity of each kind is therefore ſown. If, then, at any time the whole is paſtured, not a plant of the common field kinds is touched, whilſt a blade of the Swediſh or Dutch turnip, or Turniprooted-cabbage, is to be found.

There is ſtill another vegetable which has been cried up as excellent ſpring food. This is the Turnip-cabbage. Though the botanical character of this plant ranks it in the Braſſica genus; to a common obſerver, it differs widely from every other ſpecies. Its edible part conſiſts neither of a congeries of leaves at top, like the common cabbage, nor of a bulbous root, like the turnip, but of an enlargement of the ſtalk above ground, whence riſe the leaves, not unlike the pine apple. It is ſaid to be particularly well calculated for reſiſting drought and heat, even after being drawn from the ground. But, as far as the writer can judge from experience, (and he tried the cultivation, by every method he could think of for ſeveral years), it is a worthleſs plant, never giving any thing like even a middling crop. It is liable to ſuffer from cold; and never can ſtand a competition, in this country, with Swediſh turnip, in any one reſpect. It is probably indigenous to the north of Europe; as the writer recollects of a quantity of the ſeed being brought, by an acquaintance, from Gottenburgh, ſome thirty years ago, where he alleged it was cultivated in gardens merely for culinary purpoſes.

The houſing of the turnip crop in the end of autumn, has long been practiſed on a ſmall ſcale in ſuch places in Scotland as are unencloſed, yet cultivated this vegetable. Indeed, there could be no alternative, in a country where the whole ſtock paſtured the fields in common, but either to do this, or ſee the crop devoured at once.

In Norfolk, again, they have a cuſtom of covering their turnip with earth whilſt ſtanding in the drill. When the intervals are wide, this earth is taken from the middle of them, by a plough, and turned over the bulbs; ſomething like what is done in ſetting up. But when the rows ſtand cloſe, at the diſtance of only twelve inches, every ſecond one is drawn, and carried off, and the earth on which it ſtood turned over thoſe next it. But this practice is far from being univerſal in that county, as moſt of their turnips are ſown broadcaſt; and it would not by any means ſuit our climate. Every raiſer of turnips in Scotland knows how laborious the grubbing up of that root is, during a hard froſt, even though they ſtand on the top of the ridge: but to quarry them from under two frozen plits, would certainly be expenſive in the extreme.

As has been already obſerved, the Scotiſh farmer, if he reſolves

to have the command of his turnips in all ſeaſons, muſt, before winter, put his crop under ſome kind of cover, that can more eaſily be removed than the frozen earth.

The month of November, or beginning of December, is the proper ſeaſon for this purpoſe. It, however, ought at all times to yield to the more preſſing operations on the farm,—ſuch as wheat-ſowing; except when it is meant to ſow that grain after the turnip, and potatoes are taken up,—as a much ſlighter degree of cold will hurt theſe than turnips. It ſhould not, however, be delayed long, leſt the froſt ſet in too intenſe, to permit it to be eaſily effected.

The Swediſh turnip and Turniprooted-cabbage may indeed be allowed to ſtand till the drawing them can be conveniently overtaken, as they run no danger of rotting; but they will turn corky; and if wheat is to be the following crop, they ſhould always be drawn in the beginning of November at fartheſt.

Like moſt other operations in huſbandry, there are ſeveral methods of ſtoring turnip. Some carry off the whole crop; others draw only a third, a half, or two thirds, but moſt commonly every alternate ſix rows; allowing the other ſix to remain for hurdling off with ſheep. Some, again, cut off the leaves in the field, as the turnips are drawn, and plough them (the leaves) in for manure. Others cart off the whole plants, top and tail them at home, giving the leaves, whilſt freſh, to their ſtore beaſts: and, not unfrequently, turnip are to be ſeen put up in ricks, or heaps, in the field, without being either topped or tailed. Any way, the buſineſs is very ſimple; yet ſome attention is required, in cutting off both the leaves and top-root. If the leaves are not taken cloſe to the bulb, they ſoon ſpring again; on the other hand, if either they or the top root are taken off too cloſe, ſo that the bulb is wounded, it will inevitably rot. Some people have thought, that the taking off the top-root is unneceſſary; but on a comparative trial it was found, that, when allowed to remain, the turnip began to ſhoot, or exhauſt itſelf much earlier in ſpring. All burſten and unſound roots ſhould be thrown aſide, and firſt uſed, becauſe they ſoon rot in the heap, and ſpoil the others. Turnips keep better without doors in a heap, if ſufficiently covered, than in a houſe; owing probably to the effluvium which they emit, (and which from all the Braſſica genus is extremely putrid), being allowed to eſcape more freely in the one caſe than in the other. Theſe heaps are commonly made of an oblong form, eight feet broad at the baſe, and brought to a ridge, as high as the bulbs will admit of; which, on a baſe of this width, will be about four feet. The length and number of theſe will, of courſe, be determined by the quantity of turnip to be ſtored. An ordinary

nary crop will require, per acre, from 30 to 35 yards in length, if the dimenſions of the heap, as to height and breadth, be as above.

A far better method is, to dig trenches or hollows ſeven feet wide, and ſtore the turnips in them. But this is impracticable, wherever the ſubſoil is retentive of moiſture, as the bulbs would be aſſuredly rotten in theſe. Therefore, in ſituations of that deſcription, the beſt way is, to build two parallel walls, at the diſtance of ſeven feet; the height not to exceed three, becauſe turnip in a large maſs are apt to ſpoil. Theſe walls may be of turf, or, what would be far better, of clay or mortar, having ſix inches of ſtone or brick in the foundation. At bottom, the thickneſs may be eighteen inches, bevelled to twelve at top. They ſhould be copped with flags of ſtone, or old turf. The carts, loaded with the turnip bulbs, are then backed within theſe walls, and the heap formed into a ridge above them, and thatched over. This method is in the end the cheapeſt: an ordinary labourer will anſwer well enough for conſtructing the walls, ſo that the expence is but trivial, and, if kept dry, they will laſt an age.

Where feeding is carried on extenſively, a number of ſuch buildings, of a moderate length, erected near the feeding byre, will always be found more convenient than one of ſuch a length as would contain the whole ſtock of turnip. Theſe ſhould be placed parallel to each other; yet each ſtore muſt have its proper walls, becauſe, if theſe were mutual, the roof water could not be ſo well conveyed away.

There are ſeveral methods of thatching, or covering the turnips, whether placed ſimply on the ſurface of the ground in heaps, or ſtowed within theſe parallel walls. Some have uſed earth for this purpoſe, dug from a trench around the turnip, like what is uſually practiſed in pying potatoes. But this is expenſive at firſt, and ultimately inconvenient; as, in ſevere froſt, it is laborious work to get at the turnip. The beſt ſubſtances are ſtraw, ruſhes, or fern, as theſe are by no means loſt, being neceſſary for littering the beaſts. Theſe ſhould be laid on thatchways, to the depth of ſix or eight inches, and ſecured by ſtraw ropes, ſpare rails, the loppings of trees; or, for want of all theſe, flat ſtones, ſpits of earth or turf laid on ſuch parts of the thatch as are moſt likely to be diſturbed by wind. The ridge ſhould be particularly attended to, by an additional layer of thatch placed acroſs, ſo as one end may overlop the upper part of each ſide, and a ſpar of wood laid along above all.

The extent of building, neceſſary for containing any given quantity of turnip, may be nearly aſcertained as follows. An ordinary crop of turnip, topped and tailed, will occupy about

1600 cubic feet per acre. A building, ſuch as has been mentioned, ſeven feet wide, three high at the ſide, the turnip raiſed three and a half in the middle higher than the eaves, will, including the ſmall bevel of the walls, give about 34 cubic feet per lineal foot; ſo that about 47 feet in length will contain the crop. In every caſe, a conſiderable proportion of the turnip crop need not be removed from the ground till wanted for immediate uſe; a circumſtance which ought by no means to be overlooked in eſtimating the expence of ſtoring. Indeed, it cannot be ſaid that any extra expence is incurred by this practice. When the crop is drawn, as daily wanted through the winter, a horſe or two, and cart, muſt be excluſively allotted for carrying it home, which, by this means, is not needed; and the trouble of drawing or cutting up the turnips in time of froſt, is incomparably greater than when performed in open weather, even including the cutting off the leaves and top-roots. Beſides, frozen turnip are of very little uſe, for either fatting or ſtore beaſts. To all theſe may be added the advantage, in northern latitudes eſpecially, of having the land cleared in ſeaſon for a crop of winter wheat, in place of a ſpring one. Field and Swediſh turnips allowed to ſtand in the ground, begin to ſend up their ſeed ſtalks by the middle of March: ſtored before winter, they keep very well till the beginning of May in the Lowlands of Scotland. Even after that period, there is ſtill three or four weeks before any kind of green food come into ſeaſon, excepting ſome of the Braſſicæ. This diſmal chaſm may be filled up by ſowing a crop of broadcaſt Orange turnip in September on an early oat ſtubble. This kind is later by a fortnight than any of the others in ſending up its ſeed ſtalk; and even after that riſes, it continues tender and ſucculent till the bloſſom appears. So that, if a field of winter rye has been alſo provided, there is no danger of being a ſingle moment without green food throughout the year; and the land on which the late turnip has grown, may very well be brought into preparation for turnips in June. That which produces the rye, may likewiſe either be prepared for a crop of June turnip; or, after taking one good cutting for houſe-ſoiling, may be allowed to run to grain, with conſiderable ſucceſs, as the writer has more than once experienced.—*6th June* 1805.

TO

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Curſory Thoughts concerning the Management of the Great Poſt Road running through Eaſt Lothian.

SIR,

THE advantages which the agriculturiſt enjoys from good roads, are numerous and manifeſt; and, indeed, experience ſhews, that no country can be improved to any conſiderable extent, unleſs a ready and eaſy communication is opened betwixt its different parts. Without reaſoning in ſupport of a propoſition, which few will be diſpoſed to contradict, I ſhall, with your permiſſion, briefly offer a few remarks on the preſent ſtate of the great poſt road which paſſes through the county of Haddington, and ſuggeſt one or two things, which, if adopted by authority, and carried ſufficiently into execution, would be of much benefit, not only to the inhabitants of that diſtrict, but alſo to perſons of every deſcription who are travelling to the metropolis.

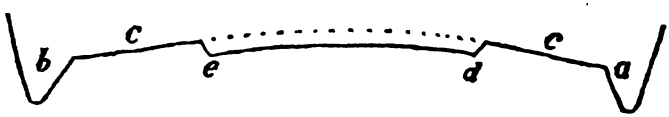
Eaſt Lothian (the ordinary name given to the greateſt part of the county of Haddington) procured the firſt turnpike bill in Scotland for repairing public roads; and to this very circumſtance may, in a great meaſure, be attributed many of the defects which confeſſedly prevail in its road adminiſtration. The line choſen for the great poſt road was, in many places, naturally unfit for affording a free and eaſy communication to thoſe who uſed it. In more places than one the road was carried over high grounds which might eaſily have been avoided; and the wideneſs, though perhaps at the time commenſurate to the agricultural and commercial ſtate of the diſtrict, is, in numerous inſtances, altogether within the limits neceſſary for the increaſed and increaſing number of horſes and carriages which are conſtantly paſſing alongſt it. Theſe original defects, much to the credit of the truſtees, have been partially remedied and corrected; but, as generally happens in every other buſineſs where wrong plans have been adopted at the outſet, can never be completely removed. The jarring of private intereſt alſo, often retards public improvement, though obviouſly and indiſpenſably neceſſary; and the expence required to carry ſuch into execution, is an argument never loſt ſight of by thoſe who are hoſtile to the meaſure from mercenary motives. Without attempting to diſcuſs the propriety and utility of ſome alterations which have, with much judgement, been propoſed on the great poſt road, becauſe ſlender expectations can be entertained of their being carried into execution, I ſhall paſs on to the main object of this letter, namely, to point out the imperfect and unſcientific manner

ner in which repairs have been made thereupon for ſeveral years paſt.

To a traveller who has been in the habit of viewing the public roads of other diſtricts, and even to every one who takes the trouble of thinking upon the ſubject, the operative adminiſtration of the Eaſt Lothian poſt road muſt appear ſingularly defective. Originally covered with gravel or ſtones, to the breadth of ſixteen feet or thereby, ſucceeding repairs have generally been made by piling up freſh materials on the top of the original fabric, till the road, in many places, has been made to reſemble ſomething like the roof of a flat houſe. As broken ſtones are now only uſed, and that to the thickneſs of ſeven or eight inches, without being blended with ſand or ſmall gravel, no horſe or carriage will take upon the places repaired, unleſs compelled by neceſſity; ſo, of courſe, the ſoft, or ſummer road as it is called, on the ſides, is reſorted to till it is rendered unpaſſable, and the whole thrown out of ſhape. Wheel carriages are then forced to take the high metalled ridge; and when two meet, the one that goes off the centre is in danger of being overſet. Let any perſon examine a piece of the road recently made, about a mile and a half to the eaſtward of Haddington, and he will inſtantly be ſatisfied that no exaggerated deſcription is here preſented. In ſhort, the public ſafety calls for making up the ſouth ſide of that road with earth, or ſome other materials, before winter ſets in, as was lately done for ſeveral miles weſtward of Haddington, otherwiſe ſerious conſequences may be dreaded by every perſon who travels in the night-time. The reaſon why I condeſcend on the ſouth ſide of that road is, that the ditch ſcourings have ſerved to preſerve ſomething like a proper ſhape on the north extremity, which cannot be gained on the other without artificial aid.

It has often occurred to me, that, inſtead of heaping ſtones upon ſtones, as preſently practiſed, it would be much better, were a part of the old materials digged up, and thrown to the extremities, by which means the gulphs on each ſide would not only be filled up, but the road itſelf would in time be covered in its whole breadth with hard materials. A firm bed would alſo be thereby got for the new metals, whilſt the acclivation of the road would be conſiderably reduced; and, in fact, ſuch a convex ſhape as was judged moſt expedient might be preſerved over its whole limits. A figure, copied from Dr Dickſon's complete body of huſbandry, will explain my meaning more diſtinctly than the moſt elaborate deſcription.

The



The above figure ſhews the manner of forming a convex road, in which *a* and *b* exhibit the ditches or drains on the ſides; *c c* footways, or horſe roads, when ſufficiently wide; *d* and *e*, a convex line, ten or twelve inches lower at *d* and *e* than the footway. The ſpace ſhewn by the dotted line is to be filled up with hard materials.

It muſt be attended to, that Dr Dickſon gives the above figure as a model or plan of the beſt way of conſtructing a new road; whereas, the uſe I make of it is, to explain my ſcheme for repairing an old one. Suppoſe the ſpace below the dotted line occupied by old materials, let the workmen begin about nine inches from the extremities, which leaves a kind of wall for boxing in the new metals, and dig ſix inches deep, more or leſs, according to circumſtances, ſloping gradually upwards till they come to the centre, and throwing the materials, thus digged out, on the ſoft or ſummer roads on each ſide. I ſay, by this mode, a road, originally ſixteen feet wide, would at once be widened to twenty or twenty-two feet, which might be extended when future repairs were made; whilſt its ſhape would be rendered much more ſcientific and uſeful, than can poſſibly be attained to when new materials are applied, without a preparation or bedding being made for their reception.

Having thus noticed, in a curſory manner, the chief defect in the preſent operative ſyſtem of repairing the great poſt-road, running through the county of Haddington, allow me juſt to notice the alterations which have been propoſed on the line now in uſe, and to hint at an entire new line to a certain extent, where the public at large would travel through the diſtrict with greater facility, whilſt the expence incurred in making it would not be greater than would certainly be called for, were the propoſed alterations to be executed.

To thoſe acquainted with the face of the diſtrict, I need hardly mention that, with the exception of a mile loſt in going round by Dunbar, the preſent line of poſt-road is a good one, till you paſs Linton-bridge. Here, however, you aſcend a hill of conſiderable elevation, choſen perhaps becauſe of its height, in order that travellers might have a good view of the adjoining fertile country; though this hill might eaſily have been avoided, by taking the river Tyne on either ſide. After deſcending this height, commonly called *Poncraik*, the road is nearly level, till you arrive at Haddington;

dington; but from that place there is almoſt a gradual riſe for three miles, which riſe is loſt more precipitately after paſſing Tranent, before you reach the flat land on the banks of the Forth, and a ſevere pull given to thoſe travelling eaſtward. To ſhun theſe riſing grounds eaſt and weſt of Haddington, various plans have been offered, none of which are impracticable; though I cannot help being of opinion, that a new line, which would leave Haddington about three miles on the right hand when travelling eaſtward, would be infinitely more eligible.

It is not my wiſh to take up too many of your pages at this time with a ſubject chiefly local, though one in which the public at large are certainly much intereſted. I confine myſelf, therefore, merely to hint, that the beſt line of poſt road would be got by following what is called the north poſt road from Wallyford toll to the village of Drem, and from that place to make a new road for five or ſix miles by Gilmerton to Linton Bridge, where the preſent line would be taken up. In this way, the public at large would have a ſafe and eaſy road; travellers would paſs through one of the beſt cultivated and moſt agreeable diſtricts in Britain; and theſe acquiſitions would be gained, in my humble opinion, at an expence leſs than would be required, were the alterations on the preſent line which I have alluded to, carried into execution.

The preſent great road from Linton weſtward might be kept under the turnpike ſyſtem, which would allow as good a communication with Haddington and the coaleries as is preſently furniſhed.

Various other matters might have been mentioned in this letter, ſuch as the nature of the contracts entered into for ſupporting the roads, the depth of metals applied, and the duties incumbent on the general ſurveyor; but theſe, for the reaſon already aſſigned, ſhall be reſerved for another communication. And I am, yours, &c.

AN EAST-LOTHIAN MAN.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Turnip Caterpillar.

SIR,

THE dark-coloured worm that ſo generally appeared in the turnip fields laſt ſeaſon, and was productive of very deſtructive conſequences, attracted my attention; and I here beg to hand you a few obſervations reſulting from my inquiries.

They were firſt diſcovered in the fields in this neighbourhood about

about the 23d of July. On the 26th, I picked up 20 of them. I firſt uſed means to kill them, and put them in wine for a quarter of an hour, others in the juice of oak bark, very ſtrong, for the like time; but neither had the effect. I then tried them in whiſky for five minutes; and although they ſeemed ſtupid and almoſt motionleſs on taking them out, they ſoon recovered.

Finding theſe attempts fail (and although ſucceſsful practical farmers would probably not have adopted them), I next determined to follow out their own operations. Accordingly, I had a white iron box about eight inches long, two deep, and two wide, in which I put them along with turnip, peaſe, potatoe, roſe-cabbage, raddiſh, bean, and lattice leaves, and I obſerved the worm range through them eagerly till the turnip was found out, which was fixed on immediately. I alſo put in a ſmall turnip. On the 27th, the turnip leaves were much eat. On the 28th, the cabbage and raddiſh were holed, but in a very trifling degree. On the 29th, nothing particular appeared. On the 30th, ſome more of the cabbage was eat: and I now found five of the worms lying in neſts, as it were, very thin, and the ſides as high as their own back,—two upon the turnip leaves, two between the whole turnip and the root of the ſhaw, and one on the potatoe leaf. I likewiſe obſerved a number of dry ſkins, in appearance like the worm. At three in the afternoon they had left their neſts, and I then removed the leaves firſt given them, and put in a freſh ſtock of turnip leaves from the garden. 31ſt, two were covered quite over in the neſts, and I could not diſcover that they had eat any of the leaves. On the 3d Auguſt, they were all, to appearance, dead; but, on touching them, they moved. 7th, two apparently dead, and of a brown colour; the others as I found them on the 3d, and I did not diſturb them. 14th, except ſix, and thoſe in the neſts, all the others were ſeemingly dead. The ſkin of theſe ſix was quite freſh, and I thought life was in them. 20th, two of the ſix had changed colour to a very light green. I ſaw the form of a head, ſhoulders, wings, and a number of legs of a clear white colour. I noticed one move. 21ſt, no viſible alteration. 26th, except theſe two, and thoſe in neſts, the others appeared to be dead. On the 3d September, I obſerved two completely formed flies, orange-coloured body, three feet on each ſide, the wings longer than the body, black head, and two horns. They jumped about, quite active, but did not attempt to fly. Two remained in their neſts, and one in the ſtate I found it on the 20th Auguſt. I put in ſome freſh turnip leaves. 9th September: this day another was in full form and hopping about, and one lying in the half-formed ſtate before noticed, and motionleſs. On looking in to them

them on the 10th, the three flies were dead. I alſo perceived what I conſidered to be two eggs, yellow coloured, of a barrel ſhape, the eighth part of an inch long, and about the thickneſs of a ſmall pin.

I forbear to deduce any concluſions from the progreſs of this moſt deſtructive creature; and not being a farmer, have no opportunity of practiſing any experiments. At ſome particular ſtage it may occur to you, that it can, in ſome meaſure, be got the better of; and, in that view, I have been the more minute. I have the dead flies, eggs, &c. which are at the ſervice of you, or any of your readers, who may wiſh to inquire more particularly into the matter; and you are at liberty to make what uſe of the foregoing facts you pleaſe. And with beſt wiſhes for the ſucceſs of a publication ſo well-calculated for uſeful and general information as the Farmer's Magazine, I am, &c.

Peebles, June 1805. B.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Remarks and Obſervations on the Smearing of Sheep.

SIR,

OF all the animals propagated and reared with ſo much care for either the uſe or pleaſure of man, I think the ſheep claims a great preeminence: whether we conſider it as an article of food, or of clothing, it particularly merits our attention: and thoſe perſons who have laboured much, either to improve the carcaſe as an article of food, or the fleece as an article of clothing, equally merit the thanks and gratitude of their fellow citizens.

The neceſſity of ſmearing ſheep, in certain ſituations, ſeems to be confirmed by long experience; but in what particular reſpect this contributes to the health or preſervation of the animal, has never yet been perfectly aſcertained, at leaſt as far as I know, nor perhaps has the ſubject ever been fully inveſtigated. Does its utility ariſe from the adheſive nature of the tar binding the wool cloſe on the animal, and by this means preventing the cold from penetrating, or is there ſomething in the nature of tar which promotes the health, or adds to the ſtrength and vigour of the ſheep? I can ſcarcely think the latter to be the caſe, as many inſtances are known where the tar has ſo far penetrated the fleſh of the animal as to cauſe its death. As far as I am acquainted with the nature and properties of tar, I do not think that the rubbing or ſmearing of any animal with this ſubſtance can be conducive to its health. The properties of tar, conſider-

ed

ed as a medicine, are known to be of a very active nature; and I am apt to think that both caution and judgment are neceſſary, either when it is adminiſtered internally, or by outward applications. Another bad property of this ſubſtance is the colour or tinge it gives to the wool, which no means yet known can perfectly eradicate; ſo that the value of the wool is greatly reduced, being rendered unfit for many of the moſt valuable purpoſes of the manufacturer. The greaſe, with which the tar is mixed, muſt certainly have a moſt pernicious tendency, when we conſider that the moſt rancid and half putrefied butter, and the very worſt ſorts of oil are the ſubſtances uſed; and were it not that the nature of the tar in ſome degree corrects the putrid tendency of ſuch ſubſtance, the moſt fatal conſequence would undoubtedly follow; as I am fully perſuaded, that, notwithſtanding the correcting property of the tar, ſuch ſubſtances prediſpoſe the animal to be infected, both with maggots, and every other ſort of vermin. It is likewiſe a well known fact, that oil or greaſe, in place of rendering the ſkin more impervious to the cold, makes it much more ſuſceptible of it. If theſe obſervations therefore are well-founded, the principal uſe of the tar can only be to bind the wool cloſe to the animal, and by this means prevent the cold and wet from penetrating ſo much as it would otherwiſe do; and the only uſe of the greaſe, to give the tar a capability of being ſcoured or waſhed from the wool. I will now beg leave to ſuggeſt ſome improvements to the candid conſideration of thoſe who are neither wedded to old cuſtoms and prejudices, nor too quickly influenced with new opinions. I think it would be no difficult matter to prepare a ſolution of ſome gums, and other reſinous ſubſtances, together with a certain proportion of ſoda, or ſome alkaline ſalts, the properties of which are known to be of an antiputreſcent nature, and muſt certainly be more conducive to the health of the animal than the materials at preſent in uſe. A compoſition of this nature would give no tinge or colour to the wool, but what could readily be removed by the uſual proceſs of ſcouring or waſhing, and might eaſily be made of an adheſive nature, ſo as to fix the wool in the ſame manner as tar does.

But if tar muſt be uſed, it would ſurely be preferable to mix it with ſome ſubſtance of a ſoapy nature, or ſome article ſtrongly impregnated with ſoda or other alkaline ſalts *, as the power or nature of ſuch ſubſtances to reſiſt every kind of putrefaction is now fully proved by the moſt incontrovertible experiments. Even the bathing or waſhing in ſalt water is known to be the beſt preventive

* I am informed that ſome vegetable ſubſtance of this nature was ſold by Mr George Gray in Hawick laſt year.

preventive againſt catching cold; but all oils and greaſe of every ſort ſeem to have quite the contrary effect. What I have wrote I ſubmit to the ſuperior judgement and long experience of others; and if any thing I have ſuggeſted ſhould be of the ſmalleſt uſe either to individuals or ſheep-farmers in general, the writer will feel himſelf highly gratified.

Banks of the Tweed. I. G.

[We have indulged Mr London, for whoſe profeſſional abilities we entertain conſiderable reſpect, by inſerting the following remarks on the ſtrictures of *Muratore* given in laſt number; but he muſt excuſe us for ſoftening ſome paſſages, and omitting others, which would have given offence, without being of any benefit to himſelf.]

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIR,

When I peruſed in the laſt number of your Magazine (p. 238), obſervations upon my book, by a correſpondent who ſigns himſelf 'Muratore,' I confeſs I felt myſelf influenced by a mixed ſentiment of indignation and aſtoniſhment.

There is a principle in every man which teaches him to repel an attack, whether levelled at his intellectual or profeſſional abilities: in the former reſpect, it is perhaps at beſt but a matter of curious ſpeculation, but, in the latter, it becomes a ſubject of prudence and of honour. I ſhould, indeed, conſider myſelf as acting with decided diſingenuity towards the public, if I either advanced theories which have no foundation in common ſenſe or in practice, or if I ſhrunk from vindicating them when attacked by malignity.

But, before I enter into an examination of my adverſary's arguments, I muſt beg leave to congratulate him, with all ſincerity, upon the modeſt form of his attack; contented to be the humble retailer of humble remarks, of which the authors themſelves, *if any ſuch there be*, will probably feel aſhamed. But, for my own part, I ſuſpect that my adverſary has ſhrouded *his own* remarks beneath this fictitious garb, perhaps in imitation of 'the table-talk of Xenophon' (for he ſeems to dabble in claſſical literature): If ſo, while I pay a deſerved compliment to his learning, I *muſt* feel indignant at his meanneſs, which would not allow him to come forward with the conſcious integrity of a man who knows he is right, but induced him to make his attack from behind the covert of a fictitious appellation.

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It may be premiſed, though a well known fact, that, in every branch of ſcience, innovations, however well grounded, will not only provoke the inquiry of liberal-minded men (and which is perhaps the higheſt honour the author of ſuch innovations can look for), but alſo ſet in action the baſer paſſions of thoſe whoſe *liberality* is 'as Oſſa to Pelion,' and who have not ſenſe enough to aſcertain whether ſuch innovations be right or not, nor ſpirit enough to adopt them if they be ſo; for little minds are generally infected with that bigotry to old forms, which is ſure to keep them in a ſtate of primitive ignorance:

'La docte antiquité fût toujours venérable;
Je ne le trouve pas cependant adorable.' BOILEAU.

I will not deny that, for my own part, I expected not only the former, but alſo a conſiderable ſhare of the latter; and your correſpondent has amply convinced me that my expectations were well grounded.

My antagoniſt firſt informs us, that a gentleman 'who was well acquainted with the ſubject,' pronounced me, with much metaphorical elegance, to be '*raw* and ignorant,' whenever I introduced my own ideas; aſſerted that I 'copied from Evelyn, Millar, Hanbury, Anderſon, and Marſhal;' and declared, that however much merit there might be in the work, this merit was not my own. But let the gentleman remember that aſſertion is not argument; and that though the former may paſs very well at a *tea-table*, it is by no means fit to influence the world in a book.

But, taking this aſſertion in the way he probably meant it, it evidently implies, either that my work is principally compoſed of the ideas of thoſe writers, or that it abounds more with quotations from them than with my own compoſition, or elſe that I am a plagiariſt. Now, which of theſe three he meant to imply, I really do not know, nor am I very ſolicitous to inquire; but, upon the manifeſt tendency of the obſervation itſelf, I ſhall make a few remarks.

I have no heſitation in confeſſing, that, in thoſe parts of my work which relate to planting, I have freely availed myſelf of the opinions of other writers whenever they coincided with my own. My intention, in compoſing the book, was to produce a uſeful practical work, reſerving to myſelf the power to correct and amend wherever I thought correction and amendment neceſſary, and to recommend whatever of antecedent practice might be eligible or advantageous. And let me aſk this maſon-critic, what other line he would have recommended to me? Would he have had me retail *old* errors in an *old* dreſs? If ſo, why publiſh a work which teaches no more than what was already known? Or would he have wiſhed me to reject all that is uſeful and praiſeworthy in the labours of my predeceſſors, in order to build a new-

fangled ſyſtem of my own? Believe me, 'raw' as I am, I know too well the value of thoſe labours to neglect them; and I ſhould deſpiſe the man who had the preſumption to imagine, that he could do *alone*, what has not yet been done by the united efforts of *many*.

All improvements in ſcience have been progreſſive. The contemplative genius of a Bacon traced an outline which the active mind of a Newton partly filled up; but, in the intermediate ſpace between theſe two luminaries, a Boyle, a Huygens, and others, contributed their individual exertions: and are we to condemn them for having left undone what Newton was deſtined to complete? In my opinion, the man who contributes the ſmalleſt mite to the enlargement of ſcience, confers a benefit upon mankind; nay, even ſome reſpect is due to the failure of a mind aiming at originality. But my antagoniſt ſeems to think with the poet,

> 'Be not the *laſt* to lay the *old* aſide;
> Nor yet the *firſt* by whom the *new* are tried.'

Truth and nature are the ſame; and in writing on a ſubject like planting, if it be admitted that ſome have correctly treated it, then it inevitably follows, that if I would wiſh to be in uniſon with truth and nature, there muſt be ſome points of ſimilarity between myſelf and other writers. But I deny that my book is ſo replete with the ideas of any man, or ſet of men, as to baniſh all original ſpeculations of my own; and I *will* deny, with ſtill greater firmneſs, that I have adopted the opinions of *thoſe writers* alluded to by Muratore. Let any one acquainted with them read my book, and judge of the fact. The truth is, I availed myſelf principally of the ideas of Price, Knight, Gilpin, and De Liſle, ſo far as they were in uniſon with my own *preconceived* notions. Such a combination of original with generally received maxims, I eſteemed to be the proper ſcope of an author who wiſhes to produce a treatiſe upon uſeful and ornamental planting, and more eſpecially, if he have it in view to afford his opinion, upon this ſubject and its correlative ones, to gentlemen laying out their grounds.

Having ſaid thus much in juſtification, I will now ſay a few words by way of *exultation*, if I can poſſibly exult over ſo poor an adverſary! But it is a juſtice I owe to myſelf (and I hope your readers will pardon the apparent egotiſm) to ſay, that this very work which Muratore has decried as a maſs of abſurdity and plagiariſm, will bear compariſon with any ſimilar publication that has appeared ſince the days of Evelyn; and I fearleſsly provoke the inquiry, conſcious of the ſtrength of my aſſertion. The only production on planting publiſhed previouſly to mine, was one by Mr Nicol; and if mine be compared with his, I have little doubt but it will be

be found to contain as much originality as his, when compared with Marſhall, or this laſt with Millar, Hanbury, &c.; nay, I will add, that the firſt, ſecond, and fourth ſections of my work are ſo far my own, that I do not remember to have ſeen their ſubjects treated of by theſe, or by any other author.

I ſhould have been the laſt man who would have deſcended to ſuch autology, or have obtruded any opinion of my work, had I not been called upon ſo to do by imperious neceſſity. To have left my defence in the hands of others (ſuppoſing, if poſſible, that any perſon would aſſume voluntarily the unpleaſant office), would have appeared either culpably neglectful, or proceeding from an inability to vindicate my own doctrines. When I therefore reſolved to undertake this reply, I felt that it was impoſſible to conduct it with ſufficient availability, without deſcending to thoſe particulars, which, to a ſuperficial mind, may appear like egotiſm. In fact, there was no other way, by which I could detect the malignancy and mendacity of my opponent, but by entering into ſuch details. Theſe remarks will I hope have due weight with every candid reader, and likewiſe apologize for obſerving further, that, until the appearance of *my* publication, no work had attempted to combine in one point of view, both uſeful and ornamental planting.

Thus, I have conſidered, and I believe *refuted*, the firſt probable meaning of the gentleman's aſſertion; but, as his ſapient remark is capable of being contemplated under two other aſpects, I will, in juſtice to him, give them a ſlight conſideration.

If he meant to ſay that my work is principally compoſed of quotations from the authors already mentioned, I will juſt hint to him, that the whole of them which I have uſed, if put together, would not occupy four pages! And now for the third application of this triple-faced aſſertion.

Does the *gentleman* mean to inſinuate that I have availed myſelf not only of the *ideas*, but the *expreſſions* of other authors, without acknowledging them? If he does, I demand him to make good his aſſertion in the ſubſequent number of this Magazine. If he does not mean this, it is evident that he has made an aſſertion which cannot be juſtified.

I now come to a part of Muratore's letter, which demands a more ſerious reply than perhaps any other: indeed, he muſt be aware, or, if he be not, I now inform him, that a court of juſtice would have given me redreſs for ſo infamous an aſſertion.

'Another gentleman,' ſays he, 'had heard the author recommended as a *maker* of hothouſes on a new conſtruction; but his improvement turned out to be an imitation ſo imperfect of thoſe

conſtructed by Mr Hay, gardener to Mr Niſbet of Dirleton, *that the one half of the houſe was heated too much, and the other too little.*'

The accuſation contained in the above paragraph, I abſolutely and utterly deny. The only ſimilarity that can be ſaid to exiſt between my hothouſes and thoſe of Mr Hay is, that he admits heated air, and ſo do I. Let me aſk Muratore, if, in mechanical operations, much does not depend upon the means employed, as well as the effect produced? One man, to let in air into his dwellinghouſe, will take off the roof, while another will be content with opening the window. It is evident that they both get air; and it is likewiſe evident which of the two gets it in the beſt manner. But, in truth, I cannot help aſcribing this obſervation to the malignancy of the writer, rather than to any juſt motive in his own mind.

Hitherto, Muratore has been but the echo of an echo, and given, in the quality of reporting clerk, the opinions of others. But now he proceeds to relate to the company, in a very formal ſpeech, with an exordium and peroration not unlike a Hockly-Hole orator, that I have laid down 'new and ſtrange doctrines' (by the by, I believe, new is generally ſtrange), and one which he, and every perſon who has the leaſt experience in building, have found to be impracticable. For the ſake of thoſe who may feel any intereſt in this controverſy, I ſhall quote this 'ſtrange doctrine' from my own book, page 146.

'When lime is employed, if, in place of ſlaking it, and letting it lie to mellow or four for ſome weeks, no more were ſlaked and made ready for uſe than what was worked up the ſame day; if the ſand were clean and rough, and well incorporated with the lime, and were the coping put carefully on, theſe walls would laſt an inconceivable length of time. Lime uſed in this way binds immediately, and the longer it ſtands becomes the harder. Hence, the ſurface of the wall would acquire a coating of moſſes, which would add greatly to its beauty, and prevent decay.'

Here alone I am vulnerable. But let not Muratore triumph; for if I know little, he knows nothing. In reality, building being no direct part of my profeſſion, it may readily be ſuppoſed that my information upon the ſubject is ſomewhat limited; yet not ſo much ſo, but that I can diſcover Muratore to have written without underſtanding it at all. Let any unprejudiced mind peruſe what Dr Anderſon has ſaid in his '*Eſſays on Lime;*' and if he be at all converſant with chemiſtry, and the practice of our beſt architects, he will be at once convinced, that neither the opinions of Muratore or Mr Adams, are founded upon the modern improvements in ſcience. To the general reader it will be needleſs

leſs to unfold theſe principles, as he muſt be convinced by facts; and therefore, I ſhall obſerve that the Earl of Wemyſs's park wall at Goſsford, Eaſt Lothian, was built preciſely after this ſyſtem: that the Earl of Mansfield's (by both of which noblemen I have had the honour of being employed) houſe at Caenwood, Hampſted, near London, was built of brick; and, inſtead of being coated over with Mr Adams's compoſition, as the front of the Edinburgh Infirmary is, to imitate ſtone, it is covered with mere lime and ſand, exactly in the ſame manner as laid down in my work. The ſame nobleman's caſtle at Scone is at preſent building with lime, no more of which is ſlaked in the morning, than what is to be uſed during the day. *

Muratore very ſagaciouſly infers, that becauſe his 'experience' informs him I am wrong in regard to mortar, which is confeſſedly diſtinct from my profeſſion, I muſt neceſſarily be unacquainted 'about trees,' to uſe his own expreſſive language. Strange reaſoning this! A candid mind would have drawn juſt a contrary concluſion. I remember to have heard of a taylor, who once undertook to bake his own mutton pye: he invited a baker to dinner with him; but the cruſt being overdone, and the gravy fried out, the baker very ſapiently inferred, that Snip could not make a pair of breeches, becauſe he failed in baking a pye!

Muratore alſo objects to that part of the laſt quotation, wherein I have obſerved, that walls, when they acquire a coating of moſſes, are leſs liable to decay, and much improved in beauty. I muſt inform Muratore, that there are two ways of arguing; one like a man who is maſter of his ſubject, and the other like a woman who knows nothing at all about it. This laſt appears to be a favourite method with my antagoniſt. He ſays, that this idea of mine is a 'conceit,' *in which* I ſhall find few to join me, but *at which* many will laugh: and this is all he does ſay; and I ſuppoſe it is ſo, becauſe he ſays it is. But I, who have never been accuſtomed to pin my faith upon the *ipſe dixit* of any man, muſt beg leave to retain my opinion in ſpite of Muratore's. If he really imagines that my ideas upon the ſubject were wrong, why did

* When Mr Atkinſon, the architect, firſt introduced this, the maſons objected to it nearly upon the ſame ground as Muratore has done; but *they* were ſoon convinced of its ſuperiority. The ſame thing took place at Millburn, near Edinburgh, the ſeat of Robert Liſton, Eſq.; but the mortar becoming ſuddenly much harder than they had ever been accuſtomed to witneſs, their clamours were ſoon ſilenced, and they acquieſced in its propriety. So much for the candour of ſome maſons! I have the ſatisfaction of learning from Mr Liſton himſelf, that this had been adopted in conſequence of the remarks in my book.

he not correct them by ſome of his own, which perhaps might have been right?

The ſame natural propenſity to blunder, is evident in that part of Muratore's letter, where he ventures to talk about *lines of beauty*. I confeſs, when I read the paragraph, I began to ſuſpect my own information, and was about to concede to Muratore a ſuperiority in book knowledge. For a moment, I apprehended that I had hitherto been unacquainted with a moſt valuable work of Hogarth's. I laid down the Magazine, and was juſt about to explore all the bookſellers' ſhops in Edinburgh for *Hogarth's book upon Taſte*, being naturally ſolicitous to read whatever had been written upon this ſubject by a man who ſo well underſtood its principles. Many a '*ſerpentine line*' ſhould I have made in my purſuit, had I not luckily reflected, that a man who appears to have but three ideas, two of them not his own, and the third incorrect, might poſſibly uſe the *laſt* in ſpeaking upon this ſubject. And as I had early been acquainted with *Hogarth's Analyſis of Beauty*, I immediately thought that Muratore had only written one thing, and meant another. All that I ſhall ſay upon this ſubject is, that I am fully prepared to vindicate every thing which I have advanced upon the principles of taſte, either in that part of my work which treats on planting, or in that which relates to landſcape.

And now I take my leave of Muratore. To the well-meant and ſenſible corrections of able men, I ſhall always be attentive; a candid mind feels a pleaſure in renouncing an error; but to the illiberal attacks of envy, prejudice, or malignity, I will for ever oppoſe a determined reſiſtance, with the ſame ſpirit that a man repels an aſſaſſin or a robber. If Muratore ſhould be induced to reply again, I forewarn him that I will not continue the controverſy, unleſs he forego mean inſinuations, and ſubſtitute open, free, and ſcientific argument. Upon theſe grounds I will ſtill meet him, even though he retain the panoply of a fictitious name; but in any other caſe, I ſhall paſs by, with the moſt perfect contempt, whatever he may advance, and leave him to enjoy the honours of a triumph, where contention would have been diſgraceful, and victory humiliating. From what I have done in this letter, the public may judge that I conſider my arguments as not being *untenable*: and therefore they cannot infer from my future ſilence, under the above circumſtances, that I am driven off the field.

I am, Sir, yours, &c.

JOHN LOUDON.

Edinburgh, June 5. 1805.

To

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIR,

AT the requeſt of a reſpectable correſpondent of yours, and with the conſent of Mr Headrick, I ſend you a copy of another of his letters to me, as it may give uſeful information to many people in the north country, who may be in want of fuel. I remain, Sir, your moſt obedient ſervant, ALEX. LOW.

Annfield, January 24th 1805.

DEAR SIR, *Thurſo, September 24th*, 1801.

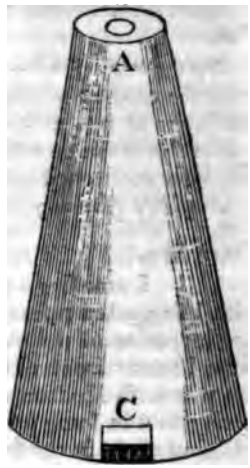
I now beg leave to fulfil my promiſe of deſcribing the plan I ſuggeſted reſpecting fuel. In this I cannot lay claim to any invention of my own, but ſhall only deſcribe the ſubſtance of what I learnt from a Dutchman who was in this country before the war with Holland commenced, reſpecting the mode of preparing fuel in ſome parts of that country. The people get a ſort of blind coal, in the form of culm or droſs, which does not burn well of itſelf, from the biſhopric of Liege. They have alſo a kind of peat mud in their own country, which does not adhere ſo as to form a peat. Theſe they mix together in certain proportions, and then work them among as much of the clay found in the bottom of their moſſes, as makes the whole adhere in one maſs. The peat earth ſerves to kindle the blind coal; and the clay not only makes the maſs adhere, but alſo ſerves to modify the inflammation, ſo that the whole burns ſlowly and equably. It alſo leaves much aſhes for manure.

They have two diſtinct objects in view in making theſe artificial compounds. One is, to make laſting and cheap fires for heating rooms in cold weather. The other is, to raiſe a ſudden but temporary heat for boiling water or dreſſing victuals.

Suppoſe then you take equal bulks of blind coal culm and of moſs, or of the peat culm from the bottom of ſtacks, or of the powdery moſs from which peats have been taken, and mix them well together. Then work them among as much loamy clay as may be ſufficient to make them adhere.

For making fires to heat rooms, this maſs is either compreſſed in moulds, while ſtill wet, and formed into the ſhape of bricks; or it is formed into rounded balls by the hand, and afterwards dried in the ſun, or under ſheds. When dried, a large grate or hearth-place is filled with theſe pieces, laid regularly with the hand, ſo as to form a ſmall air-hole paſſing into it near the bottom in front, and riſing through its centre to the top. The whole is kindled by a few ſhavings or chips of wood put into this air-hole. The Dutch gentleman aſſured me, that a fire made in this manner will laſt more than twenty-four hours, and throw out an equable and agreeable heat.

For dreſſing victuals, &c. a part of the ſame materials is formed into the ſhape of a cone, or rather the fruſtum of a cone.



B

Thus, A B is a fruſtum of a cone from 18 to 24 inches high, from 6 to 8 inches broad at top, and from 13 to 15 broad at the baſe.

From A to B, a cylindrical opening or funnel paſſes down through the centre of the cone, of from 2 to 3 inches long, and 1 inch in height, ſo as to contain nearly the ſame ſquare area with the ſection of the funnel.

The cylinder from A to B may be formed by a rounded ſtick thruſt down through the cone while the materials are ſoft; and the opening, C, may be formed by a plug of wood, which is removed after the cone is finiſhed. Great nicety is not neceſſary, and the whole may be done by the hand.

When the cone is finiſhed, allow it to dry as before. Then, if a few chips of wood, heath, or dried graſs, be thrown into the cylinder at A, and kindled by a light applied at C, theſe will ſet on fire the peat and coal in the compoſition of the cone that are next the cylinder.

Owing to the draught, a ſtrong heat will iſſue at A, and ſoon boil a kettle ſuſpended over it, or perform any culinary purpoſe required.

When the purpoſe is obtained, the heat is inſtantly checked by clapping a flat ſtone on the aperture at A, and ſtopping that at C. Thus one of theſe cones may ſerve to dreſs victuals a long time, and with the ſmalleſt poſſible expenditure of fuel. Thoſe who uſe them, ſhould always have a new one ready before the old one wears out.

No ſort of coal anſwers ſo well as blind coal for this compound ſpecies of fuel. I am not certain if I have ſtated the proportions correctly; but they will naturally vary a little as the coal and moſs may vary, and you can eaſily aſcertain them by experiments.

When this is done, I conceive the people to the northward of you, who have ſmall patches of moſs, might find it their advantage to uſe your blind coal as their common fuel. A ſingle cart load would ſerve a moderate family nearly a whole year.

But as the Highland Society have called for information reſpecting the economical uſe of fuel, you ſhould lay the reſult of your experiments, if ſucceſsful, before them. Your coal is nearer

the

the ſea than any other *blind* coal known to me in Scotland, and might prove a treaſure in all the eaſtern parts of the Highlands where the moſſes are exhauſted; and even where this is not the caſe, it might ſave the labour of cutting, drying, and carrying on the backs of ſhelties, ſuch immenſe quantities of peats as are neceſſary for the conſumption.

Having ſtated the ſubſtance of many converſations I had with the Dutch gentleman alluded to, I beg leave to mention, that he was a ſkilful deſigner, and often exhibited ſudden ſketches to illuſtrate his meaning—whether they reſpected the forms into which his materials were to be faſhioned, or the mode of building them, ſo as to compoſe a ſtrong and durable fire. I regret I did not take notes of his converſations, or preſerve his ſketches, and that I have only memory to rely on for the accuracy of what I have detailed. From perſonal knowledge, I can affirm, that the plans I have deſcribed, (if proved, and rendered eaſy by previous experiments), would be of incalculable advantage to a great part of the Highlands of Scotland.

But I conceive there are many ways in which you may employ your blind coal, ariſing from its local ſituation, and wholly independent of exportation. Its utility, in drying malt, and every ſpecies of grain, has been long known; though the conſumption in this way would be too limited to warrant ſinking pits, and conſtructing expenſive machinery. Its power in burning limeſtone is alſo generally known, and happily, you have limeſtone contiguous to this coal, capable of enduring, without melting, the moſt fervent heat your coal can excite.

All naturaliſts concur in the opinion, that blind coal conſiſts of carbon diveſted of petroleum, and other evaporable ingredients which are uſually combined with coal. Your fiery philoſophers aſſert, that theſe ingredients were originally combined with the blind, in the ſame way as they are now found combined with other coals, but that they had been evaporated and expelled by ſubterraneous heat. Your watery philoſophers account for the fact in a different manner. I ſhall leave fire and water to ſettle their differences the beſt way they can, and ſhall only remark, that our world-makers ſeem not to have contemplated nature, except through the medium of a few foſſil chips arranged in a cabinet, or they would have ſeen facts very inconſiſtent with their theories.

But the fact, that blind coal is carbon, ſeems to be well aſcertained: and, ſince there are no viſible marks of ſulphur in the compoſition of your coal, I conceive it may be advantageouſly uſed for raiſing a welding heat in ſmiths' forges.

If found difficult to heat in the open air, or to fly off in pieces, as that ſpecies of coal has a tendency to do, it may be encloſed in a chamber made of fire-clay or brick, having apertures to ad-

mit the irons that were to be heated. Bituminated coal does not raiſe the welding heat, till after the evaporable ingredients are expelled from it, and the reſiduum is converted into coak or carbon.

Now, the blind coal is already in this ſtate, with the advantage of being almoſt wholly carbon, with hardly any mixture of earths.

I alſo conceive that your blind coal might be advantageouſly uſed in braſs founderies, and in all thoſe furnaces where it is neceſſary to calcine the coal, that is, to evaporate the bitumen from it before it is applied.

As you have great quantities of excellent ironſtone, I conceive it may be uſeful to aſcertain whether your blind coal might not be uſed inſtead of coak, for charging blaſt-furnaces in the ſmelting of iron.

Theſe things are only propoſed as ſubjects of inveſtigation; and if blind coal be found, in all caſes, to anſwer where coak is now uſed, the trouble and expence of calcining the coal will not only be ſaved, and a conſiderable quantity of carbon, now unavoidably conſumed during the proceſs of coaking or calcining the coal, but a much fiercer heat will be excited. I remain, &c.

JAMES HEADRICK.

BRANCH II.

AGRICULTURAL INTELLIGENCE.

SINCE the publication of our laſt Number, the weather, on the whole, has been variable, often ungenial and unfavourable to the growing crops of grain, though, generally ſpeaking, friendly to the growth of graſs and other leguminous plants. The quarter commenced with cold, ſharp weather, which, however, being dry, proved favourable to the working of turnip and fallow land; but the chief complaint in June was a want of ſunſhine and heat, which, of courſe, kept every article behind. The beginning of July was more complacent, and every thing then puſhed on with rapidity; but the latter part of the month proved more unkindly, and ſince the 21ſt, boiſterous winds and heavy ſhowers, followed often with cloſe fogs, have been very prevalent.

From

From the intelligence communicated to us by our nu dents, it would appear that an uniformity of weather has ſure prevailed over the whole iſland, at leaſt that any ſlight ence therein may be attributed to local circumſtances. quantity of rain has fallen in every diſtrict, and the want been likewiſe felt in all. Every account concurs with ot the harveſt will at leaſt be fourteen days later than laſt yea circumſtances been ſimilar, it is impoſſible that the windi farmers' labours could, as with one conſent, have been i poned.

The late rains, it is believed, have injured the wheats i degree; and there is reaſon to dread that a continuation c will ultimately prove eminently prejudicial. In ſome diſtri and mildew have been diſcovered, and in others the red oak been obſerved very extenſively. At this time, it would l any thing like a prediction concerning the conſequences c becauſe they may be leſſened or increaſed according to th after weather. We cannot, however, avoid noticing, that of the wheat crop abundantly juſtifies the opinions given ir reviewing Sir Joſeph Banks's pamphlet on the diſeaſes of tha

We ſaid in the February Number, that the manufacturi tile intereſts would attempt to get the corn law, paſſed i ſeſſion, repealed or amended; and exhorted the landed inte ward and defend themſelves. Our prediction is accompliſt exhortation proved fruitleſs and unavailing. Indeed, whil met in thouſands, and ſigned petitions for a repeal, the la mained faſt aſleep, and patiently allowed their adverſaries pleaſed. As the amendments made extend to Scotland o Members did not interfere; conſequently, a ſmall and ineff was given to the meaſure.

Our readers may wiſh to know the nature of the am We ſhall detail them briefly, leaving the commentary to a *1ſt*, The import and export of grain into Scotland is, after t 1805, to be regulated by the average prices of the *twelve diſtricts*, and not by any reference to the average prices where the grain is to be conſumed. *2d*, The export of is the average of the Engliſh maritime diſtricts, may be ſto trict, when the prices in ſuch diſtrict, during the preceedir the import rates. *3d*, Permiſſion for importing grain fron lonies in America is extended to ſix months. In fact, th tereſt have, as uſual, gained a complete victory; for, thou rates of the preceding ſeſſions are nominally retained, grain ed into Scotland when prices are much below theſe rates. bill ſhall be given in our next Number.

The grain markets, however, in defiance of the new bill vanced conſiderably, and there is little chance of a declenſion crop is harveſted. It has been found, that every exertion not permanently reduce the price of grain; and, latterly, ported have been ſo inferior, that, in many caſes, they co without a conſiderable admixture.

This has been an excellent graſs ſeaſon, and, of courſe, the demand for lean ſtock has been great. The turnip crop has alſo ſucceeded in almoſt every diſtrict, which neceſſarily will continue the demand for a time, though eventually a glut in the market may therel· be produced. The value of labour has lately increaſed prodigiouſly, though this circumſtance, with much apparent juſtice, is not by many people conſidered as tending to the injury of the agriculturiſt. If he pays a higher price for labour, the conſumer is thereby enabled to afford a higher price for the productions of the ſoil, or, which is nearly the ſame thing, the latter is provided with the means of procuring more of the neceſſaries of life; and thus the balance remains ſtill nearly in equilibrio.

A copy of the new Property Tax Bill has juſt been received from London; and, from a curſory examination thereof, we are enabled to ſay, that the amendments now made on the former complicated and multifarious act will tend to ſimplify the aſſeſſment and collection of that tax. We ſhould have been happy could we have added, that the relief merited by agriculturiſts had formed a part of this bill; but, as the old criterion for aſcertaining their incomes is ſtill retained, very little benefit to them will, ſo far as we have inveſtigated the ſubject, accrue from the recent ſtatute.

The Publiſhers of this Work, in imitation of the laudable and praiſeworthy example ſet them by Sir G. S. Mackenzie, Bart., are ſo good as to authoriſe us to offer, in their name, a gold medal of five guineas value, or that ſum in money, to the author of the beſt Eſſay on the Culture and Management of Wheat. Competitors will, therefore, pleaſe tranſmit their Eſſays on or before the firſt day of January 1806, encloſing a ſealed note, with their deſignation and addreſs, and marking on the cover thereof the diſtinguiſhing motto of their paper; none of which notes ſhall be opened, except the one which belongs to the ſucceſsful competitor.—*July* 31.

Extracts from private Correspondence.

SCOTLAND.

Wigtonſhire Quarterly Report.

The weather was cold and backward till the ſecond week of June, when ſome genial rains were received; but their effects were in a great meaſure loſt, in conſequence of being ſucceeded by cold northerly winds. The grain crops at that time were in a very backward ſtate, though, latterly, they look much better than might have been expected from previous circumſtances. Hay, however, is a deficient crop, being ſtinted by the cold in May, though the paſture fields, which were long bare, are now much recovered. Owing to the want of graſs in the early part of the ſeaſon, not much has been done in the cattle trade; but latterly a demand has appeared, and prices have been offered which will ſoon inſure a ſale. The drain of cattle from this diſtrict, laſt fall, was ſo great, as to induce many farmers not to be in a hurry of ſelling; and theſe circumſtances, combined, occaſioned a greater delay than cuſtomarily happens.

Little

Little grain remains on hand, and from the paucity of ſales, it is impracticable to quote a regular ſcale of prices. Turnips were put well into the ground, and the plants, which are abundant, preſent a moſt healthy and vigorous aſpect. Rain has fallen plentifully for ſome days paſt, which, however beneficial to the growing crops, is highly unfavourable to hay harveſt, which is now in hand.—*July* 16.

Letter from Upper Annandale, 18th July.

'THE ſummer commenced with cold and drought, which affected the paſtures and ſown graſſes very much,—blackened the earlieſt potatoes, and alſo the bloſſoms of fruit trees and buſhes,—retarded the growth of meadows,—and rendered the oats on poor ſhallow ſoils dwarfiſh; but the oats and barley, in deep or rich lands, were little affected. The plentiful rains that fell in June revived ſome languiſhing crops, and brought others rapidly on; and the fine weather of the laſt ten days has enabled farmers to cut down the earlieſt ſown graſſes, and to make them into ſummer ricks, without their being touched by rain. The preſent aſpect of crops in this diſtrict is nearly as follows.

'*Barley* in the ear, an abundant crop. *Oats* ſhooting, and moſtly a good crop; Spots dwarfiſh, and particular fields over luxuriant. *Potatoes* every where good. *Sown Graſſes* in general very light; but a decent crop on lands well dreſſed, if alſo well *hained*, through laſt winter. *Meadows* later than laſt ſeaſon, and probably lighter. *Paſtures* much improved by the June rains, and preſent heat. *Turnips* generally promiſing, and moſtly hoeing and ſingling out; Swediſh turnips well ſpread. *Wheat* appears well, but is here only in ſmall quantities. *Flax*, in general, exceedingly thin and bad. *Prices* of cattle and ſheep declined much, but have riſen again of late; and Wool is in demand, at an advance, eſpecially fine qualities. Meat continues at 6d. per lib., and oatmeal ſteady at 2s. 6d. per ſtone. Sown hay 1cd. per ſtone of 24 lib.'

Morayſhire Quarterly Report.

THE growing crops in this county, eſpecially wheat and oats, wear a moſt promiſing appearance; if any partial failure, it is in barley. Wheat ſeems to have eſcaped the blight; but in ſome fields ſmutt is too much diſcerned. The great danger to be apprehended is from over luxuriancy, if the weather ſets in wet, as the crop in general will be ſome weeks later than laſt ſeaſon. The grain markets cloſed with a ſteady demand. Wheat 35s. to 40s.; Barley 24s. to 25s.; and Oats 17s. to 18s. per boll, Stirlingſhire wheat and barley meaſure. The late permiſſion for the diſtillers to work on 1ſt October in place of 10th November, by whomſoever propoſed, has been a moſt beneficial meaſure for the landed and farming intereſt of the north, and the promoter deſerves their beſt thanks; without this toleration, large quantities of inferior bear, which is now ſold off at fair prices, muſt have lain on hand, and ultimately, perhaps, gone to the feeding of hogs.

Hay is a middling crop. Paſture abundant ſince the late favourable change of weather; and lean ſtock have, within theſe three weeks, experienced a riſe in price, with ready ſale.

Potatoes are good; turnip but partially ſo.

Some farmers among us are now begun to ſow rape after the method practiſed in Northumberland, to be eat off the ground by ſheep and cattle previous to its being ploughed up for wheat. The experiment is not yet brought to maturity, although little doubt is entertained of its ſucceſs.

Two different croſſes of ſheep, the one for a hill, the other for a low country diſtrict, have been lately attempted in this county; the former by an intelligent farmer, is from a South-Down tup (brought north by Joſeph King Eſq. of Newmill), fine wool, long-bodied, black face and legs, with common black-faced hill ewes. The Highland ſhepherd, who had charge of the flock in which this change was introduced, was at firſt moſt averſe to it, fearing the croſs would neither ſtand the winter, nor forage ſo well in the hills, although ſatisfied that both wool and carcaſe would be materially benefited. In all reſpects, he is now quite reconciled to this diſcovery of his maſter's (for here it was never known before); and the owner will be amply repaid, having ſold his wool from this croſs at 22s. per ſtone of 24 Engliſh lib., while for the Highland wool he only obtained 10s., both unwaſhed. If any hill ſheep farmer has a mind to try the experiment, ſome half-bred tups may be had, by applying to the ſecretary of the Morayſhire Farming Club.

The other brood alluded to, is from ſmall white ewes, the aborigines of the country, croſſed with Diſhley tups. Many of thoſe ewes, when judiciouſly picked out, are found very handſome, uncommonly ſmall in the bone, fine wooled, make excellent nurſes, and, if moderately well fed during winter, ſeldom ſuffer in lambing. The wool from this croſs readily ſold this ſeaſon at 25s. per ſtone; and the fleſh ſeems better adapted for thoſe counties where the coalheavers' mutton has not got into vogue, or where, from its ſize, the ſale of ſuch is with difficulty effected. On the whole, it is found to anſwer particularly well in the lower diſtricts of this county, and is worth trying in ſimilar ſituations over the greater part of Scotland, eſpecially north of the Forth.

N. B.—Since the above was wrote, ſome of our beſt wheat fields have been attacked by blight; and as the weather is wet, and much of the grain under the blooming proceſs, an increaſe of the malady may be dreaded.——*July* 27.

Banffshire Quarterly Report.

A long tract of cold weather, which continued till about the end of laſt month, kept our crops long in a very backward ſtate. Since that period, we have experienced a favourable change, and things are now puſhing on with great rapidity. The barley ſtill continues very defective, particularly where ſown after turnip; a failure now very prevalent with land upon a retentive bottom: perhaps this may in ſome meaſure be owing to the injury done to the ſoil by carting off the turnip. Oats in ſuch caſes ſucceed better, and are frequently ſubſtituted. The harveſt muſt be a late one, which of courſe will render it a precarious buſineſs in ſuch a climate as ours, whatever it may be in more favourable ſituations. The moſt of our grain was brought to market ſome time ago, at leaſt out of the hands of the farmer; and, upon the whole, we have reaſon to be ſatisfied with the ſales and produce of laſt year, as it brings us nearer to a level with the high price of labour and various other expences, than has happened for ſome years paſt.

paſt. Our hay crop turns out much better than was expected; and the paſtures now preſent a luxuriant appearance. For the laſt two or three markets, cattle in good condition were more in demand, and prices rather advancing. Little conſumpt in the butcher market. Beef, 5d. to 7d. per lib. Amſterdam.

The turnips look very healthy, having for the moſt part made a good braird, and eſcaped the ravages of the fly; and what wheat we have has all along maintained a good appearance; ſo that if the next month is favourable, a conſiderable return may be expected from this article.——*July 25.*

Angus Quarterly Report, 25th July.

The moderate rains which have fallen, at intervals highly ſeaſonable and convenient for the country, ſince the firſt week of June, have greatly improved the crops of every kind, particularly hay and paſture-graſs, which had ſuffered conſiderably from the preceding hard, cold, chilling weather in April and May; and, conſequently, the cattle markets all around kept dull till St Peters at Forfar, the 3d inſtant, when buſineſs of that kind began to revive. On Tueſday, 16th, at Stobs fair near Dundee, a briſk ſale commenced; and, there being ſeveral Engliſh dealers, good prices were agoing. Thurſday the 18th, at Paddy fair in the Mearns, a greater number of dealers from the ſouth, and higher prices than had been known there, as is ſaid, for a long while before. And, yeſterday, the 24th, the hill market of Kirriemuir, very little, if any, inferior to the former.

Wheats look ſmilingly rich. Barley in ſeveral places rather thin, but no appearance of deficiency. The proſpect of Peas, as alſo of Lint, generally encouraging. Hay harveſt well advanced, and the crop good; not likely to go above 6d., if ſo high, the ſtone weight. Fruit is a ſcanty crop generally. An antidote, more effectual, and of eaſier application, than hitherto propoſed, much wanted againſt the caterpillar, whoſe ravages upon the buſh foliage of this ſeaſon are like to know no bounds. Meat ſtill high; Beef and Mutton 7d., Lamb 6d. per lib. Odds of 30s. were lately given at our ports for barley of laſt crop, and a guinea offered for a conſiderable quantity of the new. Our fiars, annually and monthly, from Candlemas laſt to this date incluſive, ſtand as below.

		Peas and Beans.			*Wheat.*			*Barley.*			*Cheſter Bear.*			*Oats.*			*Oat Meal.*		
		l.	s.	d.	l.	s.	d.	l.	s.	d.	l.	s.	d.	l.	s.	d.	l.	s.	d.
1804.	Annual	0	17	10	1	19	3	1	8	0	1	3	6	0	18	11	0	19	2
1805.	February	0	18	0	2	6	3	1	9	2	1	3	3	0	18	7	0	18	6
	March	0	17	10	2	3	3	1	9	3	1	5	4	0	18	10	0	19	2½
	April	1	0	0	2	5	0	1	8	9	1	5	0	1	0	1	0	19	4
	May	0	0	0	1	15	6	1	7	6	0	0	0	0	19	0	0	18	10
	June	0	0	0	2	2	9	1	3	3	0	0	0	0	17	8½	0	19	3
	July	0	17	0	2	6	1	1	6	8	0	0	0	0	19	3	0	19	0

Inverneſsſhire Quarterly Report.

The weather was extremely cold till the middle of June, when fine warm rains ſet in, which benefited the growing crops very much; and now an abundant crop may be expected, though the harveſt will be fully two weeks later than in laſt ſeaſon. Some fields of barley will probably be ready for

the ſickle by the end of Auguſt; but a general harveſt cannot be expected ſooner than the ſecond week of September.

Grain, the ſale of which had ſtagnated much in the beginning of the quarter, has lately had a briſk demand. Barley in particular has been much in requeſt, and great quantities have been ſhipped for the ſouthward. Sheep and wool have advanced in price. At Fort-William market, where moſt of the ſheep and wool of the North Highlands are ſold, wedder lambs ſold at 7s. to 7s. 6d.; wedder ſheep 20s. to 21s.; caſt ewes 8s. to 10s.; wool unſmeared 9s. 6d. per Scotch ſtone; ditto tarred 7s. 6d. All theſe articles have riſen higher ſince the market, and ſales continue to go on briſkly. The ſale of cattle has been duller than that of ſheep, and fewer have gone ſouthward than in former years. Accommodation at the banks being rather limited, prevents purchaſers from making extenſive ſpeculations.

The Caledonian Canal is going forward with ſpirit; and a great proportion of the work people at this ſide have been employed in making a new bed for the river Neſs, at a place where the canal goes into the old channel. The firſt lock is conſiderably advanced; and, in ſhort, much progreſs is made in every department. The effects of that national undertaking on the value of labour are now, however, ſeverely felt, as a good hand cannot be got to work by the day at leſs than 2s. 3d. or 2s. 6d.; and 3s. 6d. per day, beſides drink, is given for cutting hay. Theſe high wages are occaſioned by the principal contractors at the canal ſetting out ſmall pieces of the work to inferior undertakers, who each have a ſquad of ſix or eight below them; and as the undertaker wheels the firſt barrow, he muſt bribe high, ſo as the ſquad may keep up with him. About one thouſand hands are employed at this end of the canal; and it is a matter of aſtoniſhment, that this number has not increaſed the conſumption of butcher meat in the ſmalleſt degree.——*July* 25.

Mid-Lothian Quarterly Report.

The ſummer throughout has been extremely favourable for dreſſing fallows and drilled crops of every denomination. The turnips have come up freely, and hitherto met with no check from the caterpillar. Theſe, as well as the fallows, are in a ſtate of great forwardneſs, and in fine culture.

Wheat and beans are luxuriant, and at preſent greatly at the mercy of the weather: much rain would prove ruinous to both theſe crops. Oats and barley may be deemed a fair average crop. Many fields of the latter are, however, rather ſlight, and in a degree of foulneſs inconſiſtent with improved agriculture.

Notwithſtanding theſe favourable appearances, the die is not yet caſt: for the crops at preſent are certainly from ten days to a fortnight later than ordinary; ſo that a great deal ſtill depends upon the enſuing month.

The potato fields look well, and are perhaps more free of the curl than in ſome former years.

Hay is a good crop, and the quality excellent, where it has been got up during the previous fine weather; but mowers have been ſcarce. In ſome diſtricts they are only in the midſt of hay harveſt, and in others they have not yet begun. The buyers (ſomething like the manufacturers) think that ought to have hay at the ſame rate for which they uſed to buy it in good

good ſeaſons twenty years ſince, and are offering 6d. per ſtone of 22 lib. The growers with more reaſon ſay, that with double rents and triple wages, with a train of burdens *additional*, and *unknown* twenty years ago, that even with a good crop and improved management, they cannot afford hay for leſs than 8d. per ſtone; and there the matter reſts. Mowers twenty years ſince were 15d. a day; this year, 3s. 6d. and 4s. a day, beſides beer, or 4s. 3d. without beer.

The paſtures in general are good; and the demand both for cattle and ſheep to England conſiderable, at rather increaſed prices. Beef at Edinburgh, of equal quality, brings rather more money, ſinking the offal, than during the winter and ſpring months—ſay 9s. and 9s. 6d. per ſtone of 17½ lib. The ſtack-yards are nearly empty.——*July* 26.

Letter from Glaſgow, July 26.

'THE Iriſh ports having been ſhut againſt the exportation of all kinds of grain, wheat excepted, for the laſt three months, our importation from thence was confined to a few cargoes of oats, ſhipped before the laſt quarter-day. This, however, together with ſome cargoes from Northumberland and the north of Scotland, have kept our market abundantly ſupplied with that ſort of grain. About 10,000 bolls of wheat, imported from Dantzic into Leith and Grangemouth, came to this market. This has been our chief foreign ſupply, the deficiency of which has been amply made up by the adjacent country, which, laſt year, muſt have yielded far beyond expectation.

'The country at preſent has a fine appearance. Should the weather ſet in dry and ſunny, we may look forward for an abundant crop. At preſent we are buſy at hay harveſt; and ſhould we have dry weather for a few weeks, it will be got up in fine order. This crop has turned out weightier by much than was once expected. Our potatoes bid fair to yield a fine crop. Annexed you have a ſtate of our Markets.

'State of Glaſgow Markets, July 26.

Dantzic Wheat	-	40s. to 42s. per boll of 240 lib.
Canada ditto	-	40s. — 45s. ditto ditto.
Britiſh ditto	-	43s. — 46s. ditto Linlithgow meaſure.
Barley	- -	34s. — 37s. ditto Stirling ditto.
Bear	- -	30s. — 34s. ditto ditto ditto.
Potato Oats	-	25s. — 26s. 6d. do. ditto ditto.
Common ditto	-	21s. — 23s. ditto ditto ditto.
Iriſh ditto	-	24s. — 25s. ditto of 264 lib.

Old Hay, 10d. per ſtone.—New ditto, 7d. to 8d.'

Aberdeenſhire Quarterly Report.

THE weather which ſet in cold towards the end of April, continued ſo till the middle of June; but as the ſeed ſown this year was good, and ſeaſonably laid down, and as there were frequent falls both of ſnow and rain, vegetation was only retarded; the plants were not materially injured, nor the crop thinned. When favourable weather returned, the growth came forward with a moſt aſtoniſhing rapidity; and the laſt two weeks of June, and all the month of July having been good, crops of every kind promiſe abundance, whether they conſiſt of wheat, of bear, of oats, or of peas or

beans. Harveſt, however, will be ſome weeks later than uſual; and upon the ſucceeding months we muſt yet depend. The hay crop is a full average one: in many places, the cutting and making is far advanced; in others, it is juſt begun. Clover has been particularly luxuriant this year. The turnip-ſeed came up very rapidly; the earlieſt ſown looks uncommonly well, and the lateſt are following apace. Potatoes are not far forward, but are ſufficiently promiſing. The paſture-graſs, which kept long backward, has lately mended much; indeed, in few ſeaſons has it been better than for a month paſt; and cattle have, during that time, fold more readily, and at higher prices, than before. Great numbers of them are juſt now on their way to England. There is very little oats or bear remaining on hand, except in the ſtack-yards; the demand having increaſed for theſe articles during the preſent month, and the price, eſpecially for the latter, having advanced a good deal. Of oat-meal there remains in the county, unſold, a conſiderable quantity, there having been little demand for that article during the ſeaſon.——*July* 26.

Letter from Falkirk, July 27.

'THE cold, ſharp dry weather, noticed at the cloſe of laſt quarter, continuing after the commencement of the preſent, kept the paſtures very bare for a long time, which occaſioned conſiderable diſtreſs: they are now, however, much mended. Hay, from the ſame cauſes, is but a light crop, upon the whole, in this diſtrict, although ſome partial good fields are to be ſeen. The late rains and genial weather improved the hay greatly, even beyond expectation; but were too late of reaching us, to recover it entirely. The hay crop is therefore below an average; nevertheleſs, the price will not exceed, if it even reaches 6d. per ſtone of 22 lib. Tron; which proves inconteſtibly, that although the conſumption of that article is increaſed, the quantity produced from the extenſive cultivation of the ſown graſſes is really above the demand; and unleſs farmers ſet ſeriouſly about ſome mode of conſuming it profitably on their own premiſes, it muſt, in ordinary years, prove a very drug in the market. It would not require any deep knowledge in arithmetic, to ſhow how very inadequate, now-a-days, ſuch a price is to the increaſed expence of producing it. The ſecond crop, or foggage, will be abundant. The corn crops in this diſtrict are upon the whole good. Wheat and beans moſt excellent, and certainly promiſe at preſent to be above an average, although the latter are late, and the former ſo luxuriant, that very little rain at this critical ſeaſon would do great miſchief. Indeed, while I am writing this report, it is raining pretty heavy: the wheat fields are already drooping their ſtately heads, and, in the courſe of the laſt two hours, partially lodged; but if the rain goes off ſoon, they will probably get up again. Barley and oats are middling crops. Potatoes look well. We are not likely at preſent to have general harveſt under four or five weeks. The ſeaſon has been favourable for working the ſummer fallows, an important conſideration in the Carſe; and as the cultivation of wheat is increaſing, ſo luckily is our attention turned to this ſalutary, and with us indiſpenſable proceſs. I truſt we ſhall continue ſufficiently old-faſhioned, not to be diverted from it by any alluring promiſes of advantage to be derived from ſituting green drilled crops, to the total excluſion of ſummer-fallow altogether,

together. On a part of my fallow break of laſt year, I tried what I have always heard conſidered near fully equal to any fallow, a drilled green crop two years in ſucceſſion. The crop was potatoes, well dunged both years, and alſo limed the ſecond. The potatoes were of excellent quality, though the crop was not large, which is generally the caſe on clay ſoil. The reſt of the field was completely ſummer-fallowed, dunged, and alſo limed. The wheat this year is an excellent full crop on both, though ſown with little more than ſix pecks per Scotch acre; but ſtrikingly better on the fallowed portion. This, however, is not the moſt material circumſtance; for, in point of cleanneſs, the fallowed part is infinitely ſuperior, which no doubt muſt be of great advantage during the whole rotation. Moreover, the fallow proceſs, abſtractedly conſidered, is known ſo powerfully to promote fertility, that a much ſmaller quantity of dung is ſufficient to produce this deſirable effect; and, in moſt ſituations, this is of the laſt importance. Our grain market was for ſome time very dull, with a declenſion of prices; but of late it has become briſk again, with a conſiderable riſe. Wheat may be quoted about 46s. per boll Linlithgow ſtandard meaſure; Beans, 23s.; Barley, 36s. to 40s., both per Stirlingſhire boll; but the laſt is in a great meaſure nominal; for there is very little barley in the market, and it is at preſent greedily ſought after. Oat-meal, 16½d. per peck, of 8 lib. Dutch weight. There is ſcarcely a ſolitary ſtack now ſtanding in any yard in all our neighbourhood; but I underſtand the granaries along the Canal are at preſent pretty well ſtocked. Our butcher market has continued very ſteady. Beef at preſent in retail, 8d.; Mutton, 9d.; Lamb, 7d.; all per pound Tron of 22 ounces Engliſh. The price of labourers continues to riſe; and the difficulty of procuring them, even in this populous diſtrict, at any rate, is increaſing almoſt to an alarming degree; ſo that ſerious apprehenſions are entertained, when harveſt arrives, what is to be done for hands. This evil will be aggravated, from people's fears already inducing them to go about to engage before hand ſuch as can be picked up. Hay cutters are getting from 2s. 6d. to 3s. per day, with victuals; and from 4s. to 5s. 6d. per acre when cut by piece-work: laſt year, it was done for 3s. 6d. and 4s. per acre. Thoſe, I believe, who have cut by day's wages, have not paid leſs than 6s. or 7s. per acre. If theſe things are indications of increaſing proſperity, we are unqueſtionably advancing rapidly to the very ſummit of national greatneſs; if they are evils, they will probably work their own cure. However it may be, the rent of every ſpot of ground that comes into the market augments in a degree that excites ſurpriſe, even with thoſe who ought to have ſome judgment in theſe matters.'

Fife Quarterly Report.

THOUGH the paſture graſs in this county has ſuffered for want of rain, of which very little has fallen for near two months, yet none of the victual crops ſeem to have been in the leaſt checked in growth, from one end of the county to the other; and on all ſoils and climates, the crop appears to be abundant, where the land is, as it ought to be, clean and in good condition.

The wheat is univerſally good, the ear large, and promiſes, if fair and favourable weather continue, to be above an average crop.

Barley alſo very good, eſpecially the early ſown, not inferior to laſt year. Oats alſo good and bulky, and very little laid in the beſt ſoils. Peas and beans excellent; promiſe to be well podded, not being over luxuriant in ſtraw.

Hay in this county, in general, rather a light crop, but conſiderably better than expected a month ago. The price expected to be about 3l. per hundred ſtone. In general, got up in fine order; and the ſecond cutting advancing faſt, as rain is now begun to fall plentifully, but ſo gently, as not to be injurious to the corn crops, and of infinite ſervice to the graſs and potatoes, which wanted nothing but moiſture to make them for certain a very productive crop.

Turnips. In no ſeaſon have theſe done better than in this: every where good; no blanks; nor did the fly attack them. As for the caterpillar, it is almoſt unknown in the county.

Flax. This crop has ſuffered more for want of rain than any other, and will be ſhort and unequal. It will probably, however, produce abundance of good ſeed; and by ſaving the ſeed, the deficiency in value may be made up to the flax raiſer: For hundreds in this county find, from experience, that Scots flax ſeed (where Dutch ſeed was ſown and the crop ſaved) produces flax, equal in weight and fineneſs to foreign ſeed, for one year, but degenerates after. A good deal of ruta baga is ſown, not to exclude common turnip, but for ſpring feeding.

Cattle are in good condition, and numerous, as the high prices occaſioned many to turn their attention to breeding ſome years ago.—*July* 27.

Tweeddale Quarterly Report.

The months of April and May preſenting much froſty weather, vegetation was of courſe greatly impeded; but the ſeaſonable June rains, and the genial heat which followed, ſet every thing in motion, and, with the exception of barley, brought forward a moſt luxuriant crop, ſo far as circumſtances will permit an eſtimation to be made. The harveſt, however, will be late, fully fourteen days behind that of laſt year; and few evils are more to be dreaded by a corn farmer, in this diſtrict, than a late cutting and ingathering of the crop.

Hay harveſt is in hand. Though the growth of graſs was checked by cold in the early part of the ſeaſon, yet the clovers, which laſt year planted uncommonly well, maintained themſelves in the ground till favourable weather arrived, when a rapid growth commenced. The turnip crop, which is rather on a larger ſcale than uſual, is healthy and thriving, and as yet has been free both of the fly and the caterpillar. Sheep markets are higher than laſt year. Wedder hogs at Linton markets ſold from 14s. to 17s.; ſtock lambs of the black-faced kind from 7s. to 9s.; Cheviot lambs from 8s. to 12s. Wool has alſo advanced in price. The riſe is about one fifth more than what was given laſt year. The keep for cattle being abundant, has increaſed the demand for that article; and good horſes, both for draught and the ſaddle, fully maintain the late high prices. Grain brings nearly the ſame prices as quoted in the Haddington weekly liſt. Some oats remain on hand; but the barley crop is completely exhauſted.—*July* 27.

Roſſſhire

Roſsſhire Quarterly Report.

We have the proſpect of an abundant crop in this county; and now wiſh for dry, warm ſunſhine, to bring it to maturity, as the copious rains during the preſent week will enſure plenty of growth. There is no appearance of harveſt here, even of early oats, ſooner than September, which is fully two or three weeks behind laſt year. Wheat, in the early part of the ſpring, looked in many caſes indifferently, and threatened to be thin and light; but ſince it ſet off in April, it has continued healthy and vigorous, brought forth a fine ear, and, under the preſent moiſt ſtate of the weather, has a better chance of being a good crop, both in quantity and quality, than if it had promiſed more at an early period. Barleys, in ſeveral fields that were early ſown, will be a light crop, which may be attributed to the cold weather in the months of May and June. Oats and peas generally promiſe well; though it is to be feared the latter will be more productive in ſtraw than corn. Few beans are ſown in this county; thoſe that are, have a luxuriant growth, and, having enjoyed fine weather while blooming, may be expected to turn out well. Hay is a weighty crop, but by no means has a favourable harveſt ſeaſon, being all ſtill expoſed during this ſoft wet weather. Turnips uniformly brairded well, and are now a promiſing crop; the firſt ſown twice hoed, and nearly touching in the rows. It however deſerves to be noticed, that thoſe ſown either immediately before the rains we had on the 10th, 11th, and 12th of June, or ſoon thereafter when the land was in a raw ſtate, have made comparatively poor progreſs; and though the ſowing before heavy rains cannot be averted or foreſeen, ſtill we ſhould have a little patience till the land is again in a proper ſtate for ſowing; as, by ſo doing, in the end it will be found that there will be gain in place of loſs by delay. There has been no attack on the turnip plants this ſeaſon by inſects; which deſerves notice.

There was ſome demand for cattle in this county during the month of May; but, ſince that time, till within the laſt eight days, there has been almoſt nothing doing. Several drovers have now come into this and the neighbouring counties of Sutherland and Caithneſs, who are purchaſing briſkly: 30s. a head of advance in price has been obtained on three year old ſtots of from 7l. to 8l. value; and it is agreeable to hear of the demand in the ſouth country markets for live ſtock, which will prove a ſeaſonable relief to the north, from whence, as yet, few cattle have gone this ſeaſon. Good ſtots, in freſh condition, are from 8s. to 8s. 6d. per Dutch ſtone, ſinking the offal. Highland wedders, riſing four years old, ſell freely at from 20s. to 21s; caſt ewes from 8s. 6d. to 10s.; lambs 6s. Coarſe ſmeared wool 7s. 6d.; unſmeared ditto 9s. 6d.; Cheviot ditto 28s. per ſtone. Corn markets, during the month of May, and till the middle of June, were much at a ſtand. Since that period, there has been a demand. Preſent prices are, for common Oats, from 18s. to 20s.; Potato ditto, from 23s. to 26s. per five firlots; Barley, from 25s. to 28s. per four firlots; Peas 18s. per boll of four firlots (24 pints to the firlot); Wheat, from 36s. to 40s. per Linlithgow boll. However, any thing as to buying and ſelling corn is but trifling, the bulk of the crop having been diſpoſed of ſome conſiderable time ago.——*July* 27.

Letter from a Gentleman in Kincardineſhire, July 29th.

'THE weather, during the preſent month, has been favourable to vegetation, and the crops have improved much. The hay crop, which, in the early part of the ſeaſon, looked very thin and poor, will in general turn out a middling crop. The rye-graſs has failed this ſeaſon; but never were the clovers more luxuriant, or in greater abundance. Many farmers have ſuffered by their cattle ſwelling on the clovers. I wiſh ſome of your correſpondents would ſay what they give their cattle when in this ſituation. The cure, here, is to put an egg-ſhell filled with tar over their throats; to keep them in conſtant motion, and prevent their drinking water; and, if very bad, to ſtab them in the ſide with a ſmall knife under the lower rib. When not ſoon obſerved, they are ſure to be loſt.

'The wheat crop has much improved. Oats, peas and beans look exceedingly well, and promiſe an abundant crop; but the bear is thin in general over the county. The market for grain and cattle has taken a ſudden ſtart within theſe four weeks. Oats fetch from 20s. to 21s.; Bear from 28s. to 30s. per boll, and a quick demand. Cattle, particularly good two and three year old ſtots, have advanced from two to three pounds a head.'

Extract of a Letter from the diſtrict of Carrick, July 29.

'THE ſtate of the weather in this county, for upwards of three months paſt, has been all in extremes. The dry weather began about the 12th of April, and continued, with little interruption, to the 20th or 23d of June, with perpetual cold and froſt almoſt every night; and, for eight days out of ten, we had the wind from ſome point of the north: ſo that, at one time, this diſtrict had a moſt unpromiſing appearance. At the period above mentioned, the crops were ſcarce covering the ground. Rye-graſs appeared to be extremely deficient; and the paſtures were ſcarce ſufficient to keep the cattle alive. Since that time, with the gentle ſhowers that fell, and the warmth that ſucceeded, there has a degree of vegetation taken place that ſeldom occurs. Crops of all kinds are looking well, more eſpecially oats, which is the prevailing crop in this part of the country; and if the remaining part of the ſeaſon continues favourable, it is the general opinion that the crop will exceed an average. There is only one thing unfavourable. The late vegetation, as might be expected, muſt unavoidably occaſion a late harveſt, unleſs there ſhall be ſuch a continuance of drought and heat as is ſcarce to be expected in this climate. It may perhaps be owing to the long cold weather, and the ſucceeding moſt rapid vegetation, that the crops in general are uncommonly clean, even of the uſual annual weeds. The ſeaſon has been highly favourable for the culture of turnips, which are looking well, ſo far as they have proceeded; and if a preference is to be given to any part of the crop, it may perhaps be given to the potatoes, which are now cultivated to a conſiderable extent, and are univerſally looking well. Many farmers give a preference of theſe to turnip, and think they have a better crop after the former than the latter. As this is contrary to common experience, it is very much to be ſuſpected that it muſt ariſe from miſmanagement of ſome kind or other.

'The grain markets have continued in a gradual advance. Any oat meal that is to be had is juſt now ſelling at 18d. and 18½d. the peck;

peck; and it is in general ſcarce. Lean cattle, of late, have had a briſk ſale, though no very great advance in price; but indeed the price before was ſo conſiderable, that any material advance was ſcarce to be expected. The ſale of fat cattle here being for the moſt part an annual one, has not yet taken place, at leaſt to any extent; but there are many circumſtances which indicate that the prices cannot be low, otherwiſe the graziers will not be able to keep their ground. The great advance of rent, particularly of fine grazing ground, and the price of labour, muſt be reckoned as the chief. And when to theſe are added the additional heavy burdens now impoſed upon the farmers, and the various riſks they have to run, from late harveſts and precarious markets, it ſhould teach the manufacturers to be a little leſs loud with their complaints than they commonly are.'

Berwickſhire Quarterly Report.

THOUGH the weather continued unſeaſonably cold till near the middle of June, it proved very favourable to the preparation of turnip fallows; and the turnip crop, which has been cultivated on an extended ſcale, wears a moſt promiſing aſpect. Paſturage is abundant; and the hay crop, which is more than half cut, is in general weighty.

Winter wheats are every where luxuriant. Spring wheat alſo looks well, but was late in ſhowing the ear. Barley, though healthy, appears in many caſes to be thin on the ground. Oats are a cloſe crop, but rather indicate a deficiency of ſtraw upon dry ſoils. Peas and beans were late of getting into bloom, but are both very thriving. Upon the whole, the crops at preſent may be ſaid to promiſe well; but much ſtill depends on the weather that ſhall intervene between and harveſt.

There has been little fluctuation in the fat markets this quarter; but lean ſtock, particularly ſheep, has recently experienced a conſiderable advance; and wool has ſold from 18 to 21 per cent. above laſt year's price.

Retail price of good Mutton is 6½d. to 7d.; ditto Beef 7d. to 7½d. per lib. Dutch. Corn markets have, for ſome weeks paſt, been upon the advance. Prices at Berwick, July 27th, were, Wheat 70s. to 75s.; Barley (little in the market) 28s. to 32s.; Oats 21s. to 25s. per boll of ſix buſhels.——*July* 28.

Laſt Lothian Agricultural Report.

THE ſummer quarter of 1805 has, on the whole, proved favourable to the agriculture of this diſtrict; and, though the weather has been variable, yet none of the early variations were exceſſive, conſequently not injurious, in general caſes, to the growing crops of corn, roots and graſs. The drought of May, while it benefited the turnip and fallow fields, was not ſo great as to impede vegetation; and the fine rains about the end of the month puſhed every thing forward for a while, though a want of ſunſhine in June retarded their after progreſs. Part of July was warm and ſerene, but, towards the concluſion, a ſeries of heavy thunder ſhowers occurred, which lodged many fields of wheat and barley, and ſtopped hay harveſt for a time. From theſe circumſtances, the corn harveſt will apparently be two or three weeks later than laſt year, though, no doubt, much depends on the ſucceeding weather.

Taking the different crops in a general point of view, they may be re-

ported as very bulky in ſtraw; but as to the quantity and quality of the grain that may be produced, nothing as yet can be ſtated with correctneſs. In fact, every one of them except oats are in a critical ſtate, and may turn out either ill or well according to the nature of the weather with which we are viſited for two or three weeks to come. Some mildew, and a good deal of red gum is already diſcernible on the wheat; and as the weather remains unſettled, theſe evils muſt neceſſarily increaſe with rapidity.

The artificial graſſes have, in few ſeaſons, yielded a weightier return than in the preſent one; and the paſtures have almoſt in every caſe been excellent. Turnips and potatoes have thriven well. The former root eſcaped the fly and caterpillar, and promiſes to afford an immenſe ſupply of winter food; the latter are generally free of curl, and full of foliage.

An increaſed demand for grain has lately appeared, and prices have advanced conſiderably. The want of good ſound wheat in the London market occaſioned an increaſe of demand for that article; and the alteration made in the diſtillery law obliged the gentlemen in that trade to purchaſe barley at any price, ſo as they might open by the firſt of October, at which time new grain, in any quantity, will not be fit for uſe. It is ſuppoſed that many oats have alſo been purchaſed by the diſtillers, ſeveral of whom were almoſt bare of old ſtock. At Haddington, on 2d Auguſt, good wheat was 50s. to 51s.; Barley 37s. 6d.; Oats 25s. to 28s.; Beans 20s. to 21s.

A trial is making by a farmer in this county, on a pretty large ſcale, to feed cattle in the yard on cut clover and tares, given to them in cribs and troughs, the reſult of which will be laid before our readers in the November Magazine. At this time it may be ſtated, that the trial promiſes to end ſucceſsfully; and, if ſo, a foundation will be laid for a more economical and beneficial application of clover crops than the ancient way of cutting them for hay, or depaſturing them with cattle.—*Aug.* 3.

ENGLAND.

Letter from Lynn, July 22.

'The crops on the ground preſent a good proſpect, but the weather here has all this ſeaſon been extremely cold, except a day or two now and then; and the crops at preſent are very backward. Warm ſunſhine is much wanted, as without it we muſt have a late harveſt. The hay crop is weighty, and a great part is already well ſecured. The price of grain is advancing.'

Woburn Sheep-Shearing, 1805.

A very full and correct account of this intereſting and magnificent rural fete has been tranſmitted to us by an ingenious correſpondent in London, to whom our grateful acknowlegements are offered; but we regret exceedingly, that the limits of our Work are inadequate for preſenting the account in its original ſhape; and to abridge it, would not only be doing injuſtice to our correſpondent, but alſo to a Nobleman, whoſe zeal to bring agriculture into faſhion, and diſſeminate improvements, entitle him to our moſt reſpectful conſideration. Suffice it to ſay, that, at this important and diſtinguiſhed meeting, a very large body of agriculturiſts, both practical and [illegible]al, were aſſembled,—that ingenious artiſans of different deſcriptions preſented

preſented plans and models of their ſeveral works,—that a number of handſome premiums were judiciouſly beſtowed; and, in ſhort, that the whole proceedings were carried on with marked decorum and dignity. It gives us pleaſure to add, that his Royal Highneſs the DUKE of CLARENCE attended; and, from the teſtimony of a Scotch gentleman who was preſent, we are enabled to ſtate, that his Royal Highneſs expreſſed the utmoſt predilection for agricultural purſuits; and, by his amiable and agreeable manners, furniſhed pleaſure and delight to every one around him. A copy of the premiums for 1806 has been tranſmitted to us, which will likely be ſubmitted to the conſideration of our readers in a ſubſequent Number.

Letter from a Gentleman in Kent, 26th July.

'OUR wheats in general looked well in ſpring, and our ſpring corn went into the ground in very good order; and, from the rains that have fallen, there is a great luxuriancy of ſtraw, and on good lands very much lodged; but from the cold weather we have experienced, every thing is backward indeed, and harveſt muſt be late. From the ſame cauſes, our hay ſeaſon has been tedious, and much remains out at the preſent time; and, till this day, the cold, ſhowery weather has continued. The crop is but a poor one. Sainfoin and clovers were alſo late and long in cutting. Peas and beans have podded well. Fruit is very ſpotty. Apples and cherries, gooſeberries and currants are indifferent. Pears and plums middling; wall fruit plentiful. Our wheat crop, laſt year, was barely the half of an average crop, and the quality never ſo bad; ſo I am clear that our farmers muſt loſe money this year on that crop, at the preſent rents and charges. Our huſbandry expences have advanced in this county full 5d. in the ſhilling in 15 years; in many articles much more. Markets are, however, now on the riſe. Our hops are very ſlight of bine, very full of vermin and much honey, and the crop muſt be a poor one. Wool has a briſk ſale, and advancing in price.

Norfolk Quarterly Report.

THE ſpring and ſummer, though ſo extremely cold, and every way ſo apparently unfriendly to vegetation, do not ſeem to have had any unfavourable influence on the general crops of this diſtrict. The wheat which, during the winter, exhibited a plant, in many inſtances, ſickly and thin, improved greatly in the ſpring, and now promiſes at leaſt an average crop, ſhould it fortunately eſcape blight or mildew, a diſeaſe which, it muſt be confeſſed, the preſent cold, wet, and gloomy ſeaſon is peculiarly adapted to generate. The barley is breaking well into the ear, which appears long and heavy, and I am perſuaded will produce more than an average crop. Peas are alſo promiſing; they, in general, ſtill ſhow a full bloſſom on their tops; a circumſtance which will probably have the effect of rendering the ſample leſs lovely, as the produce from theſe after births may be expected to prove much ſmaller in ſize than thoſe from the elder branches, which are already approaching ſo much nearer to maturity. They will, however, contribute to fill the buſhel; and we may, I am confident, ſafely eſtimate them at a full average crop. From the few obſervations I have been able to make on the oat crop, I ſhould not deem it more than an average one.

Every ſpecies of grain and pulſe has acquired a moſt unuſual length and ſize of ſtem, and the aggregate bulk of the crops muſt be very conſide

a circumſtance which, under the management of judicious farmers, may be turned to great advantage, and lay the foundation for a ſucceſſion of future productive crops. The quantity of manure to be made from ſuch a bulk may be conſiderable, and muſt be an object of very great importance. It will occaſion, however, ſome additional, though we may truſt pleaſing labour to the farmer during harveſt; and, it muſt be confeſſed, ſhould the weather prove unſettled, will materially protract the continuation of it; an object of no mean conſideration, in a ſeaſon when it is not probable, however ripening the following month may prove, that harveſt can be generally begun before the firſt week in September. Both natural and artificial graſſes have produced abundantly, and hay is of courſe low in price, about 2s. per hundred weight. The turnip crop has at preſent a promiſing appearance, but dry weather is much wanted for hoeing it. The price of lock lambs is not yet generally fixed; but as the quantity of feed, from graſs and tares, is ſo very abundant, the breeders will probably obtain a fair price for their flocks. At the general wool fair for this county, held at Thetford on the 13th inſtant, that article, from the Norfolk and South-Down flocks, and from a croſs of theſe breeds, ſold ſo high as 3l. 11s. 8d. per todd of 28 lib. Grain, in general, has been looking up for ſome weeks paſt. At our laſt market, the following prices were obtained. Wheat, ordinary, 80s. to 90s., fine 100s. to 105s.; Barley 42s. to 43s.; Oats 27s. to 30s. all per quarter of eight Wincheſter buſhels.—*July* 27.

Yorkſhire Quarterly Report.

The general appearance of the ground under crop is at preſent very flattering. Some of the wheats are ſhort in the ear, while others promiſe a full product. There is, as yet, no ſymptom of mildew, &c. viſible on the ſtalk or ear; but as the old enemy, *ſpring froſt*, occurred in a ſevere degree for ſeveral nights in May, we cannot reaſonably expect all to be ripened free from that or other evils. The added experience of every ſeaſon ſeems to put it out of doubt, that the original and proximate cauſes of mildew are *atmoſpheric*, even if *ſpring froſt* be not the ſole cauſe.

The crops of barley are luxuriant; oats and beans are in ſome degree leſs ſo, but promiſe a good average produce. Peas are very flouriſhing. Rape and flax promiſe well for ſeed. Potatoes look extremely well; of which excellent root the markets have already a full ſupply. Our apple trees are, with few exceptions, entirely deſtitute of fruit, notwithſtanding the fine ſhew of bloom: the before mentioned May froſts blaſted all preceding promiſes. However, the ſtate of the weather for ſome weeks paſt, has been, and now is, uncommonly favourable to every ſpecies of vegetation, and in every ſtage of it.

The firſt crops of clover have been moſtly good and well ſaved; graſs a fair crop, much of which has been dried, and ſtacked in excellent order: Hay may therefore be expected at a moderate price. We have lately had ſome fine and ſeaſonable waterings from heavy ſhowers, which have already made a viſible improvement in the appearance of the new mown meadows, &c. Paſtures are excellent. Turnips are expected to be forward and abundant; the hoeing commenced about ten days ſince. Summer fallows are forwarder than uſual.

The price of grain has been remarkably ſteady during the laſt three months.

months. Large and unexpected ſupplies from abroad have diſappointed ſome ſpeculators, who, from the great loſs among the wheat crops of laſt year, by mildew, &c. in many parts of the country, had eagerly graſped at a profit of 50 per cent. at leaſt on their ſtock on hand, which no doubt would have been amply realized, had the foreign ſupply, with that from Scotland, been wanting. It is preſumed that London has drawn more than half of its ſupply, for the preſent year, from thoſe ſources. The beſt wheat is at 14s.; Rye, 8s. 6d.; Barley, 7s.; Oats, 4s.; Beans, 6s. 6d. per buſhel. Fat cattle are moderate in price; lean rather dear. Beef and veal about 8d. per lib.; Mutton and lamb, 7d. Butter about 1s.

It is a very extraordinary circumſtance, that at a time when great complaints are made of the badneſs of trade; when attempts are made, and ſome with ſucceſs, to exclude our manufactures from many of their beſt foreign markets, and when almoſt every thing ſeems to conſpire againſt the wool market; yet that article is now ſelling at an advance of 10 or 15 per cent. above its price laſt year, which was then thought high. Thoſe in the trade endeavour to account for it, from the increaſed number of mills and other machinery now introduced for the preparing and ſpinning of wool; and they alſo ſtrongly hint their ſuſpicions of the exiſtence of a clandeſtine export of worſted and yarn.——*July* 27.

Letter from a Farmer near Wakefield, July 27.

'Our crops of grain, as far as my obſervation and information reaches, (ſay twenty or thirty miles round Wakefield), in general promiſe far more than an average crop. Wheat is good, ſhoots well, *but late*, which cauſes the riſk in harveſting to be much greater. It is at preſent free from blight or mildew; and the weather being favourable, it is filling in the ear very faſt. This, however, is the critical period. If the preſent weather continues two or three weeks, it cannot fail to be a good crop. Should it come on wet and ſtormy, it would lodge very much, from its great length, and run a riſk of being damaged. I never ſaw barley and beans more promiſing, being every where a full and bulky crop. Oats are the moſt failing, but may be conſidered as nearly an average. Upon the whole, harveſt will be late, though, if the weather continues favourable, we may build upon a ſupply of grain much ſuperior to laſt year.

'Our wool markets are very briſk, and ſeem upon the advance. The long wool from Lincolnſhire and the Wolds of Yorkſhire, is ſelling from 1s. to 1s. 2d.; Short wools from 15d. to 18d. per lib. The ſupply on hand is not great; old wools being exhauſted, and the manufacturers in much want. The turnip crop promiſes to be luxuriant; ſo that we have before us a fine proſpect of winter feed for cattle. We had as fine weather for cleaning the land, ſowing the ſeed, and hoeing this plant, as I ever remember. I uſe the drill ſent me from your country, which pleaſes me much, though the practice does not become general here. The farmers ſay their ſheep would not lye conveniently, and be ſubject to get on their backs betwixt the drills. But I am ſatisfied that the weight of turnips produced is conſiderably more than by broadcaſt; and the practice anſwers extremely well where the crop is to be carried off for cattle.'

Northumberland Quarterly Report.

The weather, through the greateſt part of May, was particularly friendly to vegetation. The ſevere froſts not only deſtroyed almoſt

kinds of fruit, but kept every ſpecies of plants in a ſtate of backwardneſs ſcarcely ever remembered. The hawthorn, which in general flowers the latter end of May and beginning of June, was this year in full blow the latter end of June and firſt week in July. On the 29th May, the oaks are frequently in full leaf; but, this ſeaſon, the buds were only then beginning to expand. A little before this period, the weather changed, and has continued the moſt favourable to vegetation that could be wiſhed.

The wheat crops, both autumn and ſpring ſown, were probably never known ſo generally promiſing on every ſpecies of ſoil. The blooming ſeaſon has been peculiarly favourable; and if the weather continues dry, there can be little doubt of an abundant produce: and I am happy to add, that ſuch a favourable proſpect is not confined to this diſtrict; as I had the pleaſure of obſerving the wheat crops, in the month of April, in ſeveral of the ſouthern, midland, and weſtern counties, in the moſt healthy and flouriſhing ſtate that the moſt ſanguine cultivator could deſire.

Upon dry lands, the barley crop has the appearance of being good; but on ſoils of a different deſcription, it is thin. Oats are every where looking well; and if we are favoured with dry weather, the peas and beans are alſo expected to be equally good.

The fine rains in June were exceedingly favourable to the turnips; and the preſent healthy appearance of the young plants preſents the pleaſing proſpect of a full crop of this moſt uſeful and valuable root. The turnips, as well as ruta baga, that were ſown early, (viz. the latter end of May and beginning of June), ſuffered by the fly, ſo great a ſcourge to the ſouthern counties, but which is rarely ſeen in this diſtrict. The black caterpillar is at preſent beginning to make its appearance in ſome places.

The graſs crops are every where abundant, particularly the clovers.

The harveſt will be late, and this circumſtance has probably occaſioned the recent advance in the corn market. Our preſent prices are—Wheat, 11s. 6d. to 12s. 4d.; Barley, 5s. to 5s. 6d.; Oats, 3s. 4d. to 4s. 2d.; Peas, 5s. to 5s. 2d.; Rye, 6s. 4d. to 6s. 8d.—all per Wincheſter buſhel.

The markets for live ſtock continue much the ſame, therefore need not ſtate the preſent prices; but it may be uſeful to record yearly, in your work, the price of lambs at Yetholm fair, which were this year as follows: Long-wooled lambs from 18s. to 25s.; Cheviot from 9s. to 15s.

The wool market has been higher than laſt year. Long wool has been ſold at not leſs than 1s. 2d. per lib; and Cheviot wool from 1s. 4d. to 1s. 5d. per lib; a ſtrong proof of the increaſing demand for our manufactures, and a flattering proſpect that the farmers' produce will find a ready market.——*July* 27.

Letter from a Gentleman in Lincolnſhire, July 28.

'THE wheat crops of this diſtrict appear at this time very promiſing, as no blight or mildew, hitherto, has been diſcovered; but it is rather too early to form a certain judgement of mildew, the crops of all ſorts being much later than in the two previous years.

'Wool has ſold very briſk this year, namely, from 30s. to 33s. per todd, which is an average of 2s. per todd higher than laſt year. We have plenty of old corn on hand, to ſerve until the new harveſt comes in, and prices are ſteady: Wheat, 60s. to 90s.; Barley, 45s. to 50s.; Oats, 30s. per quarter. Our corn crops, in general, appear to be good; large crop, and well got in.

'There

'There is conſiderable progreſs making in our fen drainage now, al though at firſt it did not get forward ſo expeditiouſly as we could h wiſhed. Some of our Juſtices complain of its being upon too expenſive ſcale; but thoſe that find the moſt fault, know the leaſt about it. I thinl the engineer's plan of laying out the works will be a very good one v complete; and it is now in ſuch forwardneſs, as to enable the commi ers to allot the Wildmore fen this enſuing winter, which contains 11,000 acres. The Eaſt and Weſt fens may be two years before t are completely drained and allotted.'

Letter from a Gentleman in Wiltſhire, July 28.

'I am happy to inform you, that the general appearance of the crop this year, is very favourable in this county. The lateneſs and coldneſs o the ſpring kept back the hay crop; and the low wet meadow land did no get warmed in time to produce a large crop; but the ſound dry lands hav produced plentifully; and the clovers on the beſt lands, particularly o ſands, have been abundant.

'It is, as you very juſtly obſerve, a critical time to judge of the corn crops, and particularly of the wheats; but, as yet, appearances are very much in their favour.

'The wheat crop is very thick in the ground, and on that account wil ripen earlier, and be, of courſe, leſs ſubject to the blight, than if it wa thin. The bloſſoming time has been a very fair one, though occaſionally in terrupted by heavy ſhowers of rain; and though ſome of the wheat is lai by the rains, there is no great harm done yet. As to the blight or mil dew, it is impoſſible to ſay any thing of it as yet. The fungus or lichen which is ſuppoſed to do the injury, is a very ſhortlived plant. It is ſome times not above three days beginning and completing its ravages. Whatever cauſe keeps the wheat from ripening, is favourable to its growth miſty rains and want of ſunſhine particularly ſo. For although the ſee are doubtleſs always afloat in the air, there muſt be concurrent circumſtances to make them vegetate *luxuriantly*; and, at this time, there is n in their favour, but the expected lateneſs of the harveſt; which, however now promiſes to be earlier than once looked for.

'The markets here keep *up* ſtill, as you may ſee by the newſpapers; an *good* wheat is in very great demand to mix with the bad ſamples of year, particularly with the wretched ſtuff that has been imported. But th demand is only for the *beſt* wheats, the bad being quite a drug. Bu while the price of the *beſt* fixes the price of flour and bread, it anſwers th dealer's purpoſe to buy it *at any price*.

'The *barley* crop is likely to be moſt abundant. It is certainly the bes crop of the year, and promiſes to be much beyond the uſual average, an to ripen as early, or earlier, than the wheat.

'The *oat crop* is ſhort in ſtraw, and would have been much ſhorter, ha not the late rains come when they did. We think it the worſt (indeed th only bad crop) of the year in this county; and the price is got up t 4s. 6d. per Wincheſter buſhel.

'The *beans* promiſed to be a great crop; but the late ones have bee attacked with inſects during the laſt fortnight, ſo as almoſt to ſtop the growth. I truſt the early ones were too forward to be injured. But a great quantity is planted with us.

'The *peas* crop is very good indeed.

'The *turnips* have been much mended by the late rains, and promiſe an abundant crop; and winter feed of all kinds ſeems likely to be plentiful.

'The rains have alſo been very favourable to the *potato crop*, and there is every promiſe of abundance.

'Upon the whole, although the late rains have ſpoiled ſome of our hay, and retarded the making of a great deal, I think they have been of infinite ſervice; and we have, from the preſent appearance of things, very much to hope, and very little to fear; at leaſt, if it pleaſe God to ſend favourable weather until the harveſt.'

Letter from a Gentleman in Eſſex, July 30.

'SINCE my laſt, nothing has been more fluctuating than the opinions of agriculturiſts in this county, reſpecting the proſpect of the preſent crops, nor was the weather ever known to be more changeable. Not long after my letter in the firſt of May, we had a general fall of ſnow for two days ſucceſſively, and the air cold and chilly, which was followed by cold rains; whereby the barleys, which had at that time made a moſt flouriſhing and flattering appearance, received ſo ſevere a ſhock, as to leave an indifferent proſpect of an average crop. We are, however, after having our minds thus anxiouſly exerciſed, in a great meaſure relieved by the proſpect of a fair crop. Oats promiſe an abundance. Wheats appear upon the whole to promiſe an average. We have had ſeveral mildews, which have affected the fruit trees; but it is not yet perceiveable upon the wheat. The *red gum*, which is attended with a maggot, is general; but although it will of courſe be injurious, ſtill we think not to that extent which has been felt ſome years paſt. Peas and beans look well. Hay is moſtly cut and ſtacked; but the time has not been ſo favourable for theſe operations as we could have wiſhed.

'Hops have a moſt pitiful appearance; ſome of the plants are entirely devoured by the inſects. There cannot, we ſuppoſe, be half a crop, and very likely much leſs; but if, on the contrary, there had been a full average, it would have been of ſmall conſequence to the grower, there being ſo many old in hand: the price would not, with the duty, be adequate to the expence of cultivation. Turnips and cabbages have planted well. Cole-ſeed is now harvetting, of which there is great plenty, as to extent and bulk. Thraſhing machines ſeem to be coming into more general uſe. But the end for which they were firſt propoſed, as being ſo eſſentially uſeful to the farmer, (namely, to remove that dependency upon the men to which we are always liable by the flail), is quite forgot. The raging idea now is, to have machines which will thraſh a large quantity in the day, ſay 20 or 30 quarters, or more; but which do not ſhake and dreſs the corn at the ſame time. It may be aſked, where is the utility of all this, or in what reſpect is the object anſwered? I had an opportunity lately of ſeeing one of this deſcription: it thraſhed a waggon load of oat-ſtraw in about eight minutes; the ſtraw was thraſhed clean, but the chaff and corn came from the machine in ſuch a confuſed manner, as rendered it totally impoſſible to keep them from each other, without putting ſome corn out with the ſtraw. Where then is this dependency removed? The corn is certainly cleared from the ſtraw; but it is far from being well ſhaked up before it is laid aſide. Does any man of common ſenſe ſuppoſe that two or three

three men can ſhake a load of oat-ſtraw, and clear it from the corn and chaff, when in ſuch a promiſcuous ſtate, in eight minutes? We certainly want a little more information from the Scots farmers, and it is highly eſſential; for by introducing machines, which, after the novelty of them is over, are liable, from their imperfections, to be diſcontinued, the country may in a few years be unhappily prejudiced againſt threſhing machines, even of the beſt character and principles.'

Letter from London, July 29.

'THE extra demand on this market for wheat, which I ſome time ago concluded muſt be made before the new crop could be come at, (from the deficiency of laſt crop in ſome of the principal wheat counties), has taken place ſome weeks back, and ſtill continues. Very large ſales have been made of the good Dantzic wheats, at a material advance; fine ſamples of Britiſh wheat have advanced in a greater proportion, being much wanted to mix with foreign, and the quantity of fine wheat at market would have been inconſiderable, but for the ſupply from the ſouth of Scotland, which has continued great beyond expectation. The appearance of a late harveſt has doubtleſs contributed to this advance; and the ſupply of flour from the interior and the northern coaſt has very much fallen off within theſe laſt two months. There has a very conſiderable advance taken place in both barley and malt of late, without any great demand for either; but the ſupply has been equally ſmall of both. Beans and peas have been on the advance for two or three weeks; and the price of oats is alſo conſiderably higher, from the various and large demands on the market for that article; and in the abſence of foreign ſupplies, our market is immediately affected. The general appearance of the growing crops is good; but the harveſt will be late. There is no proſpect of its commencing ſooner than a fortnight, or probably three weeks hence. We had very cold weather all the month of June and beginning of July, which cauſed a backward hay harveſt; but, from the frequent ſhowers we have lately had, the laſt cut will be much greater than the firſt of the harveſt. There is yet a conſiderable quantity to get in: we have had warm weather for about a week paſt; and, ſhould we be favoured with a continuance of it, I hope the corn crops will be good.

'The appearance of the hops in Kent and Surry is ſuch, that they are conſidered utterly incapable of producing more than a quarter of an average crop; in conſequence, prices have conſiderably advanced.

POSTSCRIPT TO SCOTISH INTELLIGENCE.

Letter from Haddington, Aug. 9.

'The late heavy rain was followed, on Monday laſt, by a tornado, or high gale of wind, from the weſt, which ſeverely injured the growing crops, eſpecially thoſe of wheat, beans, and peas. It is now apprehended that the firſt mentioned grain will, in many caſes, be of poor quality, much of it being lodged before it was ſufficiently filled; and, ſince the gale of wind, a great part is diſcovered to be blaſted, conſequently, in a ſtate wherein no further improvement can be expected.'

NOT

NOTICES TO CORRESPONDENTS.

Having a great many *Original Communications* on hand, the REVIEW BRANCH is poſtponed for this Number, which enables us to preſent a few more than could otherwiſe have been accompliſhed. Some of our correſpondents betray ſigns of impatience, becauſe their favours are not inſtantly laid before the public, though a little reflection would teach them, that a prompt obedience to their deſires is not always in our power. Every attention will, however, be paid to the communications ſent us; and we return thanks for the liberal ſupport daily experienced.

We are glad that the EDDLESTONE CLUB have profited ſo much by the advice of Mr A B C, or, more ſtrictly ſpeaking, that we and our readers are to profit ſo much thereby; and thank Mr SECRETARY for communicating a valuable and intelligent paper *On the Endurance of Leaſes*, read at a late meeting. This paper diſcovers a knowledge of the law and practice of Scotland, equal to what might have been expected from the profoundeſt of our legal practitioners.

As NORVAL GRAMPIUS has not choſen to ſatisfy us on the point which we wiſhed to have elucidated, his ſtrictures on the Exciſe laws are of courſe poſtponed.

Our old friend *S. E.*'s Letter on the *Feeding Byre* is received. This gentleman, for a reaſon formerly given, may at all times depend on obtaining every mark of our attention.

The Queries on the ſubject of *Braun*, obligingly furniſhed by a reſpectable correſpondent, could not at this time be overtaken. They ſhall, however, appear in our next, together with an eſſay *on the Benefit which Farmers would derive from the Study of Botany*; and various other favours formerly noticed.

If FLAMINIUS chooſes to put his name to the paper which he lately ſent us, we ſhall not fail to publiſh it. He deals much in truiſms, therefore can be under no difficulty of authenticating them by his real ſignature.

We omitted to notice in the proper place, that the premium offered by Sir GEO. S. MACKENZIE, to the author of the beſt eſſay *on the Storing of Turnips, &c. for Winter and Spring Conſumption*, has been adjudged to Mr WILLIAM PANTON, farmer at Black Ruthven, near Perth. The eſſay is included in this Number. A Premium, to the Author of the beſt Eſſay on the Culture of Wheat, is offered in this Number by the Publiſhers. *Vide* Leading Article of Intelligence.

No. XXIV. will be publiſhed on Monday the 11th of November.

ERRATUM.

Dele, in this Number, p. 289, 20 lines from bottom, one of the words *magneſia*, which word has accidentally been repeated in the ſame line.

Printed by D. Williſon, Edinburgh.

THE

FARMER'S MAGAZINE:

MONDAY, 11. NOVEMBER 1805.

(No. XXIV.)

BRANCH I.

ORIGINAL COMMUNICATIONS.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Letter from the Secretary of Eddleſtone Club.

SIR,

IN name of the Eddleſtone Farmer's Club, I beg you'll preſent their compliments to A B C, your correſpondent upon *ploughing matches.* They would be happy to hear his talk at any of their meetings,—where, if he did not receive much intellectual entertainment, he ſhould, at leaſt, be inſured of plenty of plain roaſt or boil, and a *ſkinful* of whiſky punch; with a hearty welcome. The club are by no means diſpoſed to take his raillery in bad part; and are happy to find that, if they ſhould not, mayhap, be *witty in themſelves*, they can, at leaſt, like Falſtaff, *be the cauſe of wit in other men.*

They do not feel themſelves diſpoſed to diſcuſs the point—Whether their advertiſement did or did not give fair ſcope to the bantering compliments of your correſpondent,—being abundantly ſenſible that the public would continue to laugh with Mr A B C, while they would only yawn over their juſtification.

A Duke of Argyle, upon receiving a pelt from a dead cat covered with mud, thrown by a miſchievous boy, while walking in proceſſion, in gala dreſs, to drink his Majeſty's health upon the birth-day, is reported to have ſaid with a ſmile to one of the aſſiſtants, *behold the perquiſites of our office!* And the Club are abundantly ſenſible, that whoever chance to be any how held out to obſervation, muſt quietly lay their account with the

uſual appendages of ſuch a ſituation, and be prepared to ſubmit patiently to unreſerved criticiſm.

Though they by no means pretend to be *the lights of the world* yet, in the conſciouſneſs of the uſefulneſs of ſuch aſſociations, and of the advantages of liberal diſcuſſion—as alſo to convince Mr A B C that they are by no means actuated by *the excluſive monopolizing ſpirit of the Jews*, they have ordained me to ſend to your Magazine, along with this, a few ſpecimens of their diſcuſſions; not, indeed, in any vain conceit that theſe are calculated to diſſeminate much uſeful information, but in the hope that others of your correſpondents may be influenced, by the example, to contribute their views upon theſe or other ſubjects, if you ſhall reckon what is ſent worth inſertion. I remain, with reſpect, Sir,

Your moſt humble ſervant,

The Secretary of Eddleſtone Farmer's Club.

Subſtance of an Eſſay given in to Eddleſtone Club, upon the Endurance of Leaſes.

THE charter of ſecurity to Scots tenantry is founded in the acts of the Scotiſh Parliament 1449 and 1469. Previous to the firſt of theſe enactments, the tenant's tack was only obligatory upon the grantor whilſt he continued to retain the property of the lands, but could be vacated at pleaſure by the next ſucceſſor to the property, whether heir or purchaſer; the tenant being conſidered as having no connexion with the land, but merely through his perſonal connexion with that proprietor who had granted him the tack or leaſe. Previous to the ſecond, the tenant was liable to have his whole ſtock and crop ſwept away, without redreſs, by the landlord's creditors, to anſwer for the landlord's debts.

Indeed, while the tenant or tackſman was little better than menial ſervant to the landlord, and farmed with a ſtock the property of the landlord, theſe grievances (or at leaſt what, in the preſent conſtitution of the matter, would be ſeverely felt as ſuch) could not conſtitute any great hardſhip. The redreſs of theſe enactments, then, mark the period when the tenant had acquired ſtock of his own—whether by pilfering from the landlord's ſtock entruſted to him, or through the ſavings of induſtry, after having been admitted by the landlord to a more liberal participation of the profits, to increaſe that induſtry—and when this claſs were beginning to be able to farm with ſtocks of their own, at a rent certain, and entirely at their own riſk. The neceſſity muſt *then* have

have become apparent, of ſecuring to the tenant the ſtock and fruits upon his farm, againſt all debts but thoſe of his own contracting; as alſo that endurance of poſſeſſion which he had bargained for, to aſſure him of a proper return from thoſe enterprizes in which he might find it reaſonable to embark, in contemplation of that endurance;—in agriculture, as in every other ſubject of induſtry, it being impoſſible that induſtry ſhould exiſt, but under the firm ſecurity that it ſhall reap and enjoy its own fruits. Hence theſe two acts, aided by the liberal interpretation of our Judges, continue to conſtitute the ſole ſecurity by which the Scots tenant holds his tenure of tack.

The preſent ſubject of diſcuſſion is the *endurance of leaſes*, which may be conſidered under two diſtinct points of view. 1ſt, *What period of endurance of leaſe is ſecured, in fact, to the tenant, under protection of the ſtatute* 1449? 2d, *What length of endurance it would be eligible to have ſo ſecured?*

And, *firſt*, of the endurance of leaſes actually ſecured by the operation of the ſtatute 1449; which may furniſh ſubject ſufficient for one night's diſcuſſion.

The Scots acts of Parliament are generally conciſe, but pointedly expreſſive. The words of the act 1449 are as follow:

'Item, it is ordained, for the ſafety and favour of the puir 'people that labouris the ground, that they and all others that 'has taken, or ſall take lands, in time to come, frae lords, and 'has terms and zeirs thereof, that ſuppoſe the lords ſell or 'analzie that land or lands, the takers ſall remaine with their 'tacks, unto the iſchue of their terms, quhais hands that ever 'thay lands come to, for ſiklike mail as they took them for.'

The tenant is thus, in effect, inſtituted into a *real* connexion with the land, whoſoever ſhall come to be proprietor, for the whole term of his tack; nor can he any longer be ejected by an heir or a purchaſer. Nor is any length of endurance ſpecified that ſhall not be exceeded: but, in general, whatever is the actual endurance, (in the language of the ſtatute, *the terms and zeirs thereof*), the tenants are ſecured of poſſeſſion for that whole ſpace, being ordained *to remaine with their tacks, unto the iſchue of their terms*. From the words of the ſtatute, it is evident, that the tack was conſidered only as a temporary, and not as a perpetual tenure of poſſeſſion; for the protection of the ſtatute is extended only to tenures which have an *iſchue of their terms*. Hence it is adopted as a maxim in Scots law, that a tack, to have right to legal ſupport, muſt have an *iſſo* or termination, and that the want of an *iſſo* is a legal irritancy of the tack.

In giving validity to the endurance of the leaſe, in terms of this ſtatute, our judges ſeem to have ſeen reaſon for making a

diſtinction, founded upon *the difference of the origin* of the proprietor's right of property in the ſubject. When a landed proprietor, in full poſſeſſion of the abſolute and unreſtricted property of the ſubject, grants a leaſe, he is underſtood to be, and certainly it is moſt fair and equitable that he ſhould be, held bound to his own fact and deed in its fulleſt extent: of courſe, in ſo far as his intereſt is concerned, every endurance of leaſe is held good againſt the grantor. When, however, the property paſſes from his hands into thoſe of a ſucceſſor, and the queſtion comes to be, *How far this ſucceſſor, as a third party, ſhall be held bound by the previous deeds of his predeceſſor in the property?*—in that caſe a diſtinction ſeems to be made, founded upon the origin of ſaid ſucceſſor's right of property; and a difference of maxim ſeems to be adopted, according to the difference of origin of the ſucceſſor's right.

A proprietor may be ſucceeded in the property of his ſubject, either by his *natural heir*, that is, the one who, in cuſtom, and in law founded upon cuſtom, is expected to ſucceed, juſt as we expect other events to happen in the ordinary accuſtomed courſe of nature: Or he may be ſucceeded by a *ſingular* ſucceſſor, that is, by one whoſe ſucceſſion is a *ſingular thing*, like any event apparently not in nature's ordinary accuſtomed courſe. Theſe *ſingular ſucceſſors* are again divided into *onerous* and *gratuitous*: the *onerous* are thoſe who ſucceed for an onerous cauſe, or valuable conſideration by them given, or, in other words, who have acquired the property by purchaſe and ſale, whether voluntary, or compulſatory, by adjudication for debt: the *gratuitous* are thoſe who ſucceed gratuitouſly, without having given for the property any valuable equivalent, whether by voluntary donation *inter vivos*, or by teſtamentary diſpoſition, in which the natural order of ſucceſſion is *cut off*.

There ſeems little reaſon to doubt that a leaſe, *even for perpetuity*, would be held good againſt the grantor; that is to ſay, he might be compelled to allow the tenant to keep poſſeſſion of the land, ſo long as he maintained poſſeſſion of the property of it.

The only queſtion is, then, What extent of endurance of a leaſe would be found good againſt the different ſpecies of theſe ſucceſſors, into whoſe hands the property may come from the grantor; either during his life, by voluntary or compulſatory alienation; or after his death, by natural or inſtituted ſucceſſion?

(*1ſt*,) The *natural heir*, or *heir of line*, or *heir at law*, or, ſimply, *heir*, as he is indiſcriminately deſigned—from his being, commonly, a member of the predeceſſor's family, and, preſumeably, participant in all his councils, may be conſidered as juſtly implicated in all his predeceſſor's proceedings; or rather, perhaps,

perhaps, becauſe he is conceived of the ſame blood, his ſoul and will are alſo conceived as part of the conſtituent of his anceſtor, continued in him by tranſmiſſion; ſo that he poſſeſſes not that complete diſtinct identity, which conſtitutes *a different perſon*; and is therefore conſidered as *a mere continuation of the ſame perſon**. For theſe, or ſimilar reaſons, this ſpecies of heir has ever, in legal conſtruction, been identified with his predeceſſor, and held as his *repreſentative*: in him, ſucceſſion is not conſidered as a change, but as a continuation of poſſeſſion; it is a line extended, but not cut off. A tack, then, is held equally good as to its endurance againſt this ſpecies of ſucceſſor, as againſt the original grantor; with whom he is conſidered as identified, and, of courſe, as bound in all his obligations. In ſhort, no leaſe, of whatever endurance, if at all definite in point of time, ſeems invalid, in regard to the *grantor* and his *heirs* of this deſcription. For, though (according to Bell, in his treatiſe on leaſes) a tack *for perpetuity* was found invalid (in 1615) againſt the repreſentatives of the grantor—no doubt, becauſe it wanted the eſſential requiſite of an *iſſ*, to entitle it to protection of the ſtatute 1449; yet, in 1617, a deciſion is noticed by him, ſuſtaining a leaſe againſt the grantor, and his heirs or repreſentatives, though of an endurance *ſo long as graſs groweth up, and water runneth down*—no doubt, becauſe, though, eventually, it might prove ſomewhat long, yet it could not be fairly conſtrued into an abſolute perpetuity; as it might probably have its *iſſ* againſt the time of the general conflagration at the day of judgment, and the introduction of new heavens and a new earth, with a probable reorganization of the laws of nature.

But, although the Scots tenant ſeems thus to poſſeſs abundance of ſecurity, as to the endurance of his leaſe, againſt the grantor and his natural heirs, ſo long as they retain the property of the lands, he can have no ſecurity of *their* retaining that property; which they may voluntarily alienate, gratuitouſly, or by ſale; or which may be compulſorily taken from them, by adjudication for their debts.

A proprietor, in perfect hability of uſing and diſpoſing of his property as he pleaſes, cannot, by any voluntary gratuitous diſpoſition of his own, invalidate a leaſe which he has granted himſelf.—

* Law reaſonings have often been conſidered as the fair game of ridicule. It ought, however, never to be forgotten, that the buſineſs of the world cannot ſtand ſtill; and that there muſt be ſome determining motive or reaſon, to lead men to adopt decided maxims as to meaſures, rather than have no maxim or rule—let them be founded on analogies the moſt ſlight or whimſical.

ſelf.—Accordingly, even a deed of entail, executed in all its formalities, could not, by any of its clauſes, affect a leaſe at the inſtance of the heir of entail, which had been granted by the entailer in ſuch terms as he was in hability to have granted—no more than it could defend the property againſt ſuch debts as the entailer might chooſe to contract, even though contracted ſubſequent to the making of the entail, and its publication upon the record. The clauſes of the entail can lay no reſtriction upon the validity of the other deeds of the entailer himſelf; they can only reſtrict the powers of thoſe *whoſe right of the property is derived from the entail.* But this ſubject will fall to be afterwards conſidered.

A leaſe of almoſt any endurance ſeems good againſt the grantor and his natural heir; and, for the ſame reaſon, againſt all the natural heirs of that heir, and his natural heirs, &c. *ad infinitum.*

(2*dly*,) Let us conſider its validity againſt *ſingular ſucceſſors*;—theſe are, *onerous* and *gratuitous* ſucceſſors, as above explained.

Firſt, of *onerous ſingular ſucceſſors.* Theſe are either ſuch as have purchaſed the property from the grantor of the leaſe, at a voluntary ſale; or who have evicted the property, by obtaining a legal adjudication of it in their favour to pay debts that they had againſt it.

In regard to all ſuch ſucceſſors, who have entered upon poſſeſſion of the property, for a fair equivalent given, either in fair purchaſe price, at a voluntary ſale, or money equivalent to its value lent upon it, and for which it is adjudged, it ſeems to have been a maxim adopted by our Judges, that ſuch ſucceeding proprietors (in conſideration of their having given a fair and full equivalent) ſhould be admitted to as free, full and unincumbered uſe of the property, as it was poſſible to convey to them, through the ſtricteſt interpretation of any exiſting pledge upon the lands, previouſly impoſed by the preceding proprietor; more particularly, of pledges ſuch as leaſes, which are not entered upon record in the public regiſter of landed property; which may therefore exiſt without the knowledge of the purchaſer or heritable creditor, and which, if allowed equal force with ſuch pledges as are publicly recorded, would weaken the faith of the record, as an evidence of ſecurity, and greatly impede the free commerce of land, either in the way of purchaſe and ſale, or as a ſecurity upon which to lend money.

This difficulty might no doubt be readily obviated, by a county regiſter for tacks of endurance beyond common, and an act of parliament rendering ſuch tacks invalid, unleſs they are there recorded; and it ſeems odd that ſuch a regulation has never been applied for. But, indeed, as the grantor of the leaſe is perſonally

ally liable in damages to the tenant who ſhould be *ouſted* from the leaſe which he had granted, it is moſt probable that, in a *voluntary ſale* of his lands, he will take care to have all his leaſes ſecured to the tenants by the articles of ſale. The caſe could not, however, be the ſame, on ſuppoſition of a *compulſatory ſale* at the inſtance of creditors for debt.

If the authority of Bell (*Treatiſe on Leaſes*) is an authority to which we ought implicitly to bow the head, it would ſeem that there is no reaſon to conclude, from any deciſions yet given by our Courts, that a tack would be ſuſtained againſt an onerous ſingular ſucceſſor, if its endurance exceeded that of *an ordinary leaſe*, granted in *the ordinary courſe of adminiſtration*, which *ordinary endurance* (but upon what principle does not appear) he holds to be underſtood *of nineteen years* *.

From the original depreſſion of tenantry in feudal times, their intereſt ſeems to have been little regarded. According to the maxims of Scots law, therefore, the tenure of the tenant, inſtead of deſerving protection, has been conſidered as a clog and incumbrance upon the exerciſe of the nobler right of property in

* Bell accordingly endeavours to invalidate the authority of the deciſions hitherto relied on as a ſecurity for tacks of very long endurance, by ſhowing that none of theſe deciſions went to the eſtabliſhment of the general principle, but proceeded upon ſpecialties in the caſe.

Thus, in the deciſion of the Houſe of Peers, (the King's Advocate, coming by forfeiture in place of Lovat, *againſt* Belladrum), he alleges, Belladrum's leaſe of 1140 years was ſuſtained, becauſe, though Lovat might, in one view, be conſidered as an onerous ſingular ſucceſſor, in another view, he might be conſidered as natural heir and repreſentative of the grantor of the leaſe.

In the deciſion of our Court of Seſſion, conſequent upon the laſt, in 1760, (caſe of Irvine *againſt* Knox), a leaſe of 1260 years was ſuſtained. Bell takes no notice of this deciſion in the proper place; Findlater adverts to it in Note B of his Agricultural Survey of Peebleſhire.

In 1763, (caſe of Wight *againſt* Hopetoun), a tack renewable for ever, from 19 years to 19 years, upon a ſpecified fine or graſſum at each renewal, was ſuſtained againſt Hopetoun, although an onerous ſingular ſucceſſor by purchaſe. But it would appear that Hopetoun was debarred from challenging the title of Wight the tenant, becauſe, in his own titles, viz. the diſpoſition from Ormieſton the ſeller of the property, Ormieſton had taken him expreſsly bound to implement his warrandice of Wight's tack; and, as this clauſe muſt ever appear in the titles of each heir or purchaſer, (which to them muſt be equivalent to a regiſtration), they might equally be debarred from challenging Wight's title.

land: it has been tolerated, rather than protected, as a neceſſary evil, but ſtill an evil.

The abſurdity muſt certainly have very ſoon occurred to our barbarous anceſtors (however little accuſtomed to reflection), of expecting that induſtry would ever be exerted where it had no proſpect of reaping its proper fruits. Accordingly, as war and plunder began to be relinquiſhed for the more certain mode of ſubſiſtence derived from cultivation; when tenants had ariſen to the poſſeſſion of ſtock, making them deſirous of cultivating for themſelves, at a rent certain, and at their own riſk; and when the ſuperiority of this mode of cultivation was diſcerned, over that of the proprietor cultivating with his own ſtock, and by his own ſlaves or ſervants, admitted more or leſs into partnerſhip: the neceſſity muſt have appeared of granting ſecurity of a certain endurance of poſſeſſion, to induce the tenant to beſtow the proper labour and outlay of ſtock, in the aſſurance of having time to reap the proper returns of ſuch induſtry and outlay. And hence, no doubt, the famous act of parliament 1449. But when we conſider the traditionary jealouſy againſt allowing this temporary tenure to rival or interfere with the full exerciſe of property, which in thoſe days muſt have operated with at leaſt equal force as now, the maxim muſt equally have *then* prevailed, of conſidering tacks as unentitled to legal ſupport, which exceeded in length the ordinary endurance: And when we conſider the neceſſary ſhort-ſightedneſs of the tenantry then exiſting, with reſpect to improvements, as juſt emerging from beggary, dependance and contempt, together with the inhability of military barbarian proprietors to conceive by reflection what they had not perceived in experience; we may certainly conclude, that the ordinary endurance of a leaſe was then very ſhort; and that probably, at the time of the enactment, no leaſe would have been conſidered as entitled to the protection of ſtatute 1449, (however broad in its terms), that exceeded the old Roman legal limits of five years, or the French one, ſo late as 1775, of nine.

Accordingly, our earlieſt lawyers conſider a leaſe of ten years as a leaſe *longi vel longiſſimi temporis*, and as falling without the protection of ſtatute 1449; from its not being of that temporary nature of the rights meant to be protected by that ſtatute; and from its encroaching upon the ſacred precincts of the nobler right of property, in approaching to the nature of rights of perpetuity. In proportion to the enlargement of the views of cultivators, the total bar to every improvement of material conſequence, under ſuch impermanent tenures of ſecurity, muſt, in common ſenſe, have enforced the extenſion of the legal term of leaſe, in deſpite of the authority of theſe early lawyers, who certainly could aſſign no

ſort

ſort of reaſon for their opinion of the abſolutely neceſſary extenſion (though wiſhed for circumſcription) of the duration of leaſes, but merely their own views of what was indiſpenſable to encourage induſtrious agricultural cultivation—a ſubject of which country gentlemen and farmers were competent to judge, but, in regard to which, cloſet ſtudents were unentitled to hold an opinion. Common ſenſe would appear to have forced its own way, in overturning the crazy obſtacle of ſuch unwarrantedly aſſumed, or imputed authority. The intermediate ſteps of the progreſs are probably incapable of being diſtinctly traced: but, in two centuries from the enactment of this famous ſtatute, we find, the celebrated Erſkine had protracted the term of *longi vel longiſſimi temporis* endurance of the leaſe, from the original ten, to the ſpace of nineteen years. Nor does there exiſt the ſmalleſt ſhadow of a reaſon why views of utility may not, juſt as unceremoniouſly, ſet aſide the authority of Erſkine upon the point, as he has ſet aſide the *quondam* authority of Brancton. As yet, (according to Bell, before mentioned) no deciſion has appeared to warrant the concluſion that a tack will be ſuſtained, againſt an onerous ſingular ſucceſſor, which exceeds *the ordinary duration of nineteen years*: but, aſſuredly, as little does any deciſion poſitively militate againſt ſuch a concluſion. All that is decerned by ſtatute is, merely, *that the tack ſhall have an iſſ*: All that is decided by the authority of lawyers, is, the general maxim, obvious to common ſenſe, *that a nominally temporary tenure may, from its exceſſive duration compared to the brevity of human life, prove, to all human purpoſes, equivalent to a perpetuity*: But as to the preciſe period of endurance, which ſhall thus aſſimilate a tack to a perpetual right, it is a point which hath ever been, and muſt neceſſarily be ambulatory, to be judged of, and fixed from time to time, like the intereſt of money, according to the views of utility and conſonant cuſtoms then prevalent. And there can be no reaſon why our judges ſhould tie their judgement to the authority of Erſkine upon the point, any more than why they ſhould revert to the more antique authorities of Brancton and of Craig.

Tacks, in this country, have frequently been granted for twenty-one, twenty-five, thirty years, *as acts of ordinary adminiſtration*; without either an intention to get advantage of a ſucceeding heir of entail, or any ſpecific obligation upon the tenant to any one improvement, beyond that obligation of ſelf-intereſt, originating in the duration itſelf, of being liberal in the outlay of capital, and induſtrious in rapid improvement, from the proſpect of ſufficiently long enjoyment of the joint fruits of both. In the agricultural report of Berwickſhire, one of the pattern counties of Scotland, drawn up by a Scots lawyer, it is acknowledged, that the primary improvements of Scotland,

wh

which there took place, originated in tacks of long endurance, chiefly of fifty-ſeven years; nor is notice taken of the ſmalleſt ſpecific obligation to improvement laid upon the tenant, more than that ſimple but moſt efficient *ſtimulus* of ſuch long ſecurity: Nor does the author, meanwhile, depart from the feudal-ridden lawyer character; for though neceſſitated to acknowledge the utility of long leaſes, he ſtrongly recommends ſhort ones *as ſufficient*; he alſo ſtrongly inculcates the propriety of upholding the landlord's feudal right of *delectus perſonæ* in his tenant, by rendering the leaſe *unaſſignable* and *untransferable*: a meaſure, which (in conformity with entails of landed property) conſtitutes one of the moſt ingenious devices that can be contrived for obliterating, in the tenant, all deſire of fixing his own capital in the ſoil, and for effectually depriving him of all credit to obtain other capitals to be ſo fixed. * Who, indeed, but a madman, would launch out capital into a continual riſk of forfeiture? eſpecially when common ſenſe has ever refuſed admittance to ſuch abſurd maxims, in regard to all other profeſſional occupations requiring the induſtrious outlay of capital, to which he might betake himſelf at pleaſure.

The queſtion of endurance, it would ſeem, has not (as to onerous ſingular ſucceſſors) yet met with a deciſion founded upon the pure unmixed principle. As, however, the term of endurance has already received extenſion beyond the primary law conſtruction; as the enlargement of views of agricultural improvement implies more and more the expenſive outlay of capital, with more diſtant proſpect of return; as, in fact, the moſt effectual cultivation in Scotland has confeſſedly originated in leaſes of endurance proportionate to ſuch expence and proſpect; as (if *one general maxim* is to be laid down, which is to be equally applied to all caſes) it is better, that a term ſhould be choſen, which may prove ſuperfluouſly long for diſtricts already improved, than that one ſhould be fixed, ſo ſhort as to debar all improvement of the vaſt tracts of the country ſtill remaining in the ſtate of nature: For theſe reaſons, when the queſtion ſhall be agitated, it ſeems extremely probable that our judges would be no more diſpoſed to confine themſelves to the nineteen years term of Erſkine, than to revert to the obſolete ten years term of Craig and Brancton.

It is indeed rather ſurpriſing, that a point of ſuch importance ſhould be left ambulatory, to be regulated by the diſcretion of judges. The wiſdom of the legiſlature is daily exerciſed in deviſing

* See this ſubject illuſtrated at length in Findlater's Agricultural Survey of Peebleſhire, Note D.

viſing laws for the ſecurity of property, even when launched out in ſuch trifling inveſtiture as that of the porter mugs of London. How then has it happened, that, in regard to capital launched out by the immediate cultivators of the ſoil, to which all the other moveable capital of the Empire is but as a drop in the bucket, we ſhould, in Scotland, have had no law ſince the acts 1449, and 1469, excepting the law of entail in 1685; which, inſtead of enlarging, tends further to cramp and fetter the ſecurity of launching out money upon agricultural enterpriſe of long proſpect; and that of 1770, the tenth of his preſent Majeſty, which is not ſo generally applicable as to be much acted upon?

Bell (*Treatiſe on Leaſes*) conſiders, that the queſtion of endurance can rarely fall to be tried with an onerous ſingular ſucceſſor. Indeed, in a voluntary ſale, it is preſumeable that the ſeller will take the purchaſer bound, in the articles of ſale, to all his obligations. It does not appear that this could be effected in a compulſory ſale for debt: It may occur then in the ratio of the chances of the ſuperior frequencies of voluntary or of compulſory ſales. And, if it were to occur, an opinion ſeems to be entertained, that the deciſion might proceed upon the analogy of precedents in caſes determined, where the queſtion hath occurred betwixt the tenant and the other ſpecies of ſingular ſucceſſors, that is, the *gratuitous*. Which leads me to conſider,

Secondly, The *gratuitous ſingular ſucceſſor*. Theſe are deſigned, *ſingular*, as not ſucceeding, like heirs, *according to the order of nature*, but by *artificial deſtination*, which has cut off the natural order of ſucceſſion; whence ſuch deſtination is called tailzie, from *tailler* to cut. They are *gratuitous*, as ſucceeding *meræ gratiæ*, without having paid any equivalent.

A proprietor cannot, by any voluntary deed of his own, vacate any obligation which he himſelf hath contracted. It ſeems clear, therefore, that he cannot, either by voluntary donation of his property *inter vivos*, or by teſtamentary diſpoſition of it, communicate, to the gratuitous ſucceſſor he has thus appointed, any right to challenge his tack which he has granted. A leaſe would therefore appear to be equally valid againſt the tailzier or deſtinator, as grantor, and his heirs of tailzie, as againſt the grantor and his natural heirs; no ſtretch would be made, to convey the unincumbered uſe of property to the *artificial*, which is refuſed to the *natural* heir.

The caſe of gratuitous ſingular ſucceſſion, by *donatio inter vivos*, is a thing of very rare occurrence, and needs not to be conſidered: We may conſider ſingular ſucceſſors as univerſally conſtituted by teſtamentary deſtination or tailzie.

That the induſtry requiſite to acquire property, or to render it more

more valuable, may be excited, it is neceſſary that the full and free enjoyment of that property ſhould be ſecured. That the views of induſtry may not limit themſelves to the acquiſition merely of what may be enjoyed and diſſipated in a ſingle lifetime, the legal ſucceſſion of heirs, the preſumable objects of affection, has been introduced; and for the ſame purpoſe has the effect of teſtamentary deſtination been ultimately ſupported, to various extents, more unlimited, or more circumſcribed. There certainly are, however, proper limits, within which this ultimate power ought to be confined. In England, we underſtand the power of tailzie is confined to the extent to which the tailzier *can ſee;* that is, he can deſtine only to ſuch perſons as are in exiſtence at the time; which might ſatisfy any rational affection: But, in Scotland, it is extended as far as the tailzier can *conceive or imagine:* And to ſecure effect to ſuch whimſical deſtination, the whole intermediate ſucceſſors, till the laſt in the deſtination, are incapacitated (to uſe the words of the ſtatute 1685) '*to ſell, analzie, or diſpone the 'ſaids lands, or any part thereof, or to contract debt, or to do any 'other deed whereby the ſamen may be apprized, adjudged, or evict-'ed from the other ſubſtitutes in the tailzie, or the ſucceſſion fruſ-'trate or interrupted: declaring all ſuch deeds to be in themſelves 'null and void, and that the next heir of tailzie may, immediately 'upon contravention, purſue declarator thereof, and ſerve himſelf 'heir to him who died laſt infeft in the fee, and did not contra-'vene, without neceſſity anywiſe to repreſent the contravener.*' Thus the whole ſucceſſion of proprietors (if ſuch they can be called) upon an entailed eſtate, are reduced, by the ridiculous effect given to the will of one ſingle fool, to be mere uſufructuaries and life-renters, for as many generations as he ſhall think it proper to dream of and to ſpecify.

The abſurdity of thus rendering landed property unalienable and unaffectable by debt; thus depriving the induſtrious of the excitement of all proſpect of purchaſing a land eſtate; thus rendering the exiſting proprietors of land as neceſſarily barren of improvement as mere liferenters; thus deſtroying the proper check of paternal authority, in rendering the ſon who ſucceeds by the entail independent of the father, and incapacitating the latter from rewarding different degrees of filial duty, by proportionate ſhares of the family inheritance: Theſe obvious inconveniences have ever procured for this noxious ſtatute a *ſtrictiſſimi juris* interpretation. In deeds of tailzie claiming its protection, nothing is allowed to be implied, but what is explicitly expreſſed: The *prohibition* to alienate or contract debt, &c. is of no avail to prevent either, without the *irritant* clauſe, rendering ſuch deeds null and void, as alſo the *reſolutive* clauſe (which is the only enforcing ſanction)

ſanction) reſolving the doer's title, and making him forfeit the property to the next heir of entail. Erſkine expreſsly ſays, that a prohibition to *alienate* does not infer a prohibition to *contract debt*, and that a prohibition to *contract debt* does not infer a prohibition to *alienate:* and a variety of deciſions have occurred, ſince the days of Erſkine, moſt ſtrongly corroborative of this principle of ſtricteſt interpretation. As in 1786 (Stewart againſt Hume), though the entail expreſsly prohibited to *diſpone, or ſell, or contract debt, or grant any deed whereby the land might be evicted;* yet the heir of entail was found juſtified in *altering the order of ſucceſſion in the entail*, in favour of his own daughter; becauſe the entail did not, in expreſs words, prohibit *the alteration of the courſe of ſucceſſion* pointed out in it: And in like manner (Borthwic againſt Borthwic) the Houſe of Peers found, that the prohibition of the entail againſt *contracting debt* precluded not the right of burthening the property with a proviſion for younger children; becauſe *debt*, ſtrictly ſpeaking, implies an *onerous title* in the creditor; but a proviſion to children gives them only a *gratuitous title* to ſuch proviſion.

In regard to ſuch gratuitous ſingular ſucceſſors, whoſe rights are thus ſtrictly interpreted, it is doubtful how far, in regard to leaſes of long endurance, queſtions decided againſt them would be held as a precedent in queſtions againſt onerous ſingular ſucceſſors. They are neither *identified with the perſon* of the preceding proprietor, nor, of courſe, bound in his obligations like the natural heir, though they reſemble him in ſucceeding by a gratuitous title:—Nor do they ſeem entitled to the ſame favourable interpretation as onerous ſingular ſucceſſors; becauſe, though they reſemble them *in ſucceeding out of the natural courſe*, yet they have not, like them, *given an equivalent for the property:*—They ſeem, in ſhort, to be of a mongrel ſpecies. Were a precedent to be drawn from deciſions againſt this ſpecies of ſucceſſor, to regulate deciſion in queſtions of endurance of leaſe againſt onerous ſingular ſucceſſors, a great latitude of leaſe would appear legal: For ſo late as 1779 (Leſlie againſt Orme), a leaſe of ſeventy-ſix years was ſuſtained, in an entail unfettered as to the duration of leaſes, againſt the ſucceeding heir of entail.

The act 1685, upon which the power of entailing ſtands, does not communicate, *expreſsly*, any power to the entailer to regulate the duration of leaſes (unleſs this was to be *implicated* from its general expreſſion, '*that it ſhall be lawful to his Majeſty's ſubjects* '*to tailzie their lands and eſtates, and to ſubſtitute heirs in their tail-*'*zies, with ſuch proviſions as they ſhall think fit*;'—an implication that would ſeem diametrically oppoſite to *ſtrictiſſimi juris* interpretation); yet, in practice, our judges ſeem rather inclined to ſuſtain ſuch

ſuch clauſes in entails: And nobody would readily riſk to take a leaſe of longer duration than that preſcribed in the entail, unleſs in the faith of ſuch leaſe being ſuſtained, upon appeal, by the Houſe of Peers. Where there is no clauſe in the entail limiting the duration of leaſe, the leaſe muſt ſtand upon the protection of the act 1446. But whether a deciſion would be given, which would form a precedent in queſtions that might occur, as to endurance, with onerous ſingular ſucceſſors—or which would ſolely apply to this individual ſpecies of gratuitous ſingular ſucceſſors, liable to the *ſtrictiſſimi juris* interpretation, ſeems problematical. A caſe has occurred (Queenſberry againſt Elcho) where leaſes of ninety-ſeven years are propoſed to be granted by the poſſeſſing heir of entail; the entail containing no expreſſed clauſe of reſtriction as to length of leaſe, unleſs a relaxing clauſe in it in theſe words, ('*notwithſtanding of the above irritant and reſolutive clauſes, 'it ſhall be lawful for the heirs of tailzie to let leaſes during their own 'lifetime or that of the receivers*'), ſhould, *by implication*, be made to infer an intended reſtriction to ſomething leſs than what is allowed in the relaxation;—which would imply a latitude of interpretation in favour of heirs of entail, againſt leaſes, that (as appears) has not hitherto been allowed them, in the fore-quoted deciſions, againſt acts of their predeceſſor much more materially affecting the eſtate.

Upon the whole, it would ſeem, 1*mo*, That almoſt any length of endurance of leaſe, if only it hath an *iſſ* or expiry, will be ſuſtained againſt a proprietor unfettered by entail as grantor, and his heirs, ſo long as they retain the property of the land: 2*do*, That a leaſe of nineteen years will, *certainly*, and a much longer one will, *probably*, be ſuſtained againſt an onerous ſingular ſucceſſor: 3*tio*, That againſt a gratuitous ſingular ſucceſſor, or heir of entail, (whoſe gratuitous title is more ſtrictly interpreted), any length of leaſe will be ſuſtained (if the length is not expreſsly reſtricted in the words of the entail) that does not, by approximating it to a perpetual right, remove it from the protection of the ſtatute 1449, and bring it under the prohibitory clauſe of the entail *de non alienando*. In the caſe now agitating (Queenſberry againſt Elcho), the Lords have delivered their opinions *ſeriatim*, and are unanimous, that a ninety-ſeven years leaſe is, in this reſpect, inadmiſſible: They ſeem, however, to think this a caſe proper for ſetting at reſt, by a general deciſion, the queſtion of the length of endurance which a leaſe may poſſeſs, without putting it out of protection of act 1449: And they have accordingly appointed a ſolemn hearing of Counſel.

But, whether the deciſion that ſhall be given in this caſe, will apply to queſtions of endurance againſt onerous ſingular ſucceſſors, appears to me doubtful, from the failure of parallelism in the proprietor's

prietor's titles. The title of the gratuitous ſucceſſor ly interpreted: And, further, in his caſe, (as, fr his lands are unalienable and locked up from com validation of the faith of the regiſter of landed pr intervene, to prevent a liberal ſtretch in favour made againſt him.

I need hardly mention the act 10th of his preſer ing a power of letting thirty-one years leaſes up ſtates. The conditions of improvement impoſed if he embraces the benefit of the act, are ſo u as to be moſt frequently inapplicable, and of courſ

I ſhall conclude my remarks with juſt hinting propriety of their attending to the title the propri lands, before they take leaſes, and incur the expen the riſk of being afterwards ejected. I would pa their attention to that particular caſe where they m danger of inadvertence; and that is the caſe of the deſigned *apparent*, becauſe univerſally known to ſucceſſor to the property—but conſidered, in la than mere *apparent* proprietor, till he has complete it, by the inveſtiture at infeofment.

Suppoſing the *apparent heir* to have entered upon to have granted a leaſe before being infeofed; his feofment will, without queſtion, confer validity But, ſuppoſing that, after granting the leaſe, h having completed his titles by infeofment; in that in ſucceſſion does not enter as heir to him; but, he enters himſelf heir to the immediate predeceſſor ſhape repreſenting the *apparent heir*, the heir *paſſi* deſigned) is not bound in any of his obligations, a fore ſet aſide the leaſe. This maxim, as it would mon law, has been modulated by act 1695; by *heir apparent* has been three years in poſſeſſion o though dying uninfeofed, the *heir paſſing by* is *debts and deeds*, to the full value of the eſtate. Kilkerran expreſſes doubts, whether leaſes can b ed under the *debts and deeds* of the interjected to which the heir paſſing by is made liable; y in 1760, (Irvine *v.* Jack), a leaſe of 1260 years, heir apparent three years in poſſeſſion, was ſuſtain heir paſſing by. At all events, the clauſe of wa conſtitute a claim of *debt* againſt the heir apparent, heir paſſing by is liable. The tenant, before engag outlay, had need to know whether the heir appare leaſe has been infeofed, or been, at leaſt, three yea

In the caſe of adjudging creditors, whether of the heir apparent or heir paſſing by, there are additional circumſtances of inſecurity to ſuch a leaſe, (ſee Bell's Treatiſe on Leaſes, p. 77—80.), depending on niceties of law diſtinction, which I do not pretend to comprehend thoroughly, and which I ſhould like to ſee competently diſcuſſed.

I ſuſpect, though I do not pretend to know, that *apparency* and *paſſing by* refer merely to properties attained to in the natural order of ſucceſſion; but that, in tailzies, where all in the deſtined order ſucceed by one common title entered upon public record, there can be no ſuch thing as an heir paſſing by.

F.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Remarks on the Accounts given of the Eſkmount and Roxburghſhire Feeding Byres.

SIR,

I HAVE to requeſt the inſertion of the following ſhort remarks, which I feel myſelf obliged to offer upon the *very ſevere ſtrictures* in your Twenty-firſt Number, made by a *Stot-Feeder*, on the Roxburghſhire feeding byre.

That gentleman appears to feel hurt that any compariſon ſhould have been inſtituted betwixt the Eſkmount byre and the Roxburghſhire one, and is pleaſed to ſay, that the latter will turn out to be both leſs cleanly and leſs wholeſome than any common cow byre. That it is *more cleanly* and *more wholeſome*, I might with equal confidence aſſert; but, as the gentleman has divided his ſtrictures into ſix ſections, I beg to offer a ſhort remark upon each.

In the *firſt* place, I reply, that the ſpace for cleaning out the dung in the Roxburghſhire byre, is only *two inches* narrower than the ſpace in the Eſkmount one: and the only difference in the middle ſpace is, having the tails of the cattle, inſtead of a wall, on one ſide.

2*d*, Having expreſsly mentioned that the urine might with equal convenience be conveyed to a compoſt dung court, I thought that it would have been impertinent to have taken up half a page of your valuable Magazine, to have deſcribed minutely, what I flattered myſelf would occur to any perſon, that by making the *declivity* of the *groops* tend to openings in either wall, the urine might then be conveyed in wooden ſpouts, or ſtone troughs, &c. along the outſide of that wall which formed the neareſt and moſt convenient paſſage to the compoſt dung court.

3*d*, The acceſs to the Roxburghſhire byre *does not lye through the*

centre of the dung court. When the wide doors are in the front, the acceſs is by a paved road 10 or 12 feet wide, which paſſes between the offices and the dung court.

4th, Allowing that the extra expence of building an Eſkmount byre, to hold twenty cattle, ſhould be only four guineas above the expence of the Roxburghſhire one, I am perfectly at a loſs to conceive how a ſpace of *two feet* in width, taken from the cattle-feeder's walk for depoſiting the turnips, would be infinitely preferable, as the carts could not be *backed* into that ſpace, nor the turnips conveyed to it by a wheelbarrow; for, after *two feet* are taken from the cattle-feeder's walk, there remains only a paſſage of *one foot ſix inches* for the poor feeder to ſqueeze himſelf along a diſtance of 80 feet. And in this I ſhould ſuppoſe he would find difficulty enough, without loading himſelf with turnips; for, unleſs he carries them on his back, I do not ſee how he is to get them into the ſpace allotted for them.

5th, By making the Roxburghſhire ſtalls 4 feet each, there would only be an increaſe in the width of the byre of 2½ feet.

6th, In his third remark, the gentleman complains *of the cattle being liable to be ſtarved to death with cold*; and in his ſixth, *of the want of ventilators to procure freſh air.*

The data from which this gentleman calculates the number of pits neceſſary to contain the turnips of 15 acres, would lead to a concluſion which, I ſuſpect, he is not aware of. His turnip barn, which is to contain turnips, ſtraw, and hay, is only 27 feet by 14; now, allowing the ſtraw and hay, with a paſſage for acceſs to the turnips to take up the ſpace of 13 by 14 feet, there remains a ſpace of 14 feet ſquare for the turnips; ſuppoſe the turnips to be piled in this ſpace even *to the height of fourteen feet*, 15 acres of turnips, *containing* 7625½ cubic feet, would fill this ſpace in the barn ſeventy-five times. And, allowing the feeding to continue for 24 weeks, it would be neceſſary to fill this barn more than three times in every week, however ſtormy or froſty the weather might be. But, were the turnips piled up in this ſpace to the height of ſeven feet only; the barn muſt be filled *every working day in the week*. Surely, then, this plan would be very *expenſive, if not unneceſſary*, were it, by the moſt ample allowance, to hold only one ſpare day's ſtore of turnips.

I, too, might add a P. S. conceived in perfectly ſimilar terms, 'that I have not once noticed the ſeveral uſeful purpoſes to which the byre might be put,' &c. &c. But both plans are now before the readers of the Farmer's Magazine; and to their judgements I leave them. I am, Sir, your conſtant reader,

S. E.

[The Annual Agricultural Fetes at Woburn having of late much excited the public attention, we are induced to preſent a correct ſtate of the Premiums offered for 1806, obligingly furniſhed by a reſpectable correſpondent.]

I. *Premiums for Fat Wethers.*

1. To the perſon who ſhall breed, and produce at Woburn Sheep-ſhearing, June 1806, the beſt two-ſhear fat wether—the premium of a *Cup, value ten Guineas.*

2. To the perſon who ſhall breed in Bedfordſhire, and produce at Woburn Sheep-ſhearing, 1806, the beſt two-ſhear fat wether—*A Cup, value Five Guineas.*—The ſame perſon not to have both premiums. The name of the breeder, together with the place where bred, to be duly certified, and given in at the time of ſhearing.

The wethers to be produced on Tueſday, between the hours of ten and eleven, at Woburn-Abbey:—They will be ſhear-ed, weighed alive, killed, and weighed dead, and due attention paid to wool, carcaſe, and tallow.

II. *Premiums for Theaves bred in Bedfordſhire.*

1. To the perſon who ſhall breed in Bedfordſhire, and produce at Woburn Sheep-ſhearing, 1806, the beſt pen of three theaves—*A Cup, value Ten Guineas.*

2. To the perſon who ſhall breed in Bedfordſhire, and produce at Woburn Sheep-ſhearing, 1806, the ſecond beſt pen of three theaves—*A Cup, value Five Guineas.* The ſame perſon not to have both premiums.

The ſheep to be ſhewn in a ſtore ſtate, and to be produced at the Park-Farm on Tueſday, between the hours of ten and eleven. The claimants to produce certificates, that their theaves were bred in Bedfordſhire, ſpecifying the pariſh, and name of the breeder; alſo, that they have been regularly kept with the flock until the time of their being ſent to be exhibited.

III. *Sundry Premiums.*

1. To the perſon who ſhall produce at Woburn Sheep-ſhearing, 1806, the beſt boar—*A Cup, value Five Guineas.*

2. To the beſt ſheep-ſhearer—*Five Guineas.* Second beſt—*Four ditto.* Third beſt—*Three ditto.* Fourth beſt—*Two ditto.* Fifth beſt—*One ditto.*

If more than ten candidates, to draw lots. The trial to be made on the Wedneſday. Candidates to give notice on the Saturday before the clipping.

IV. *Premiums for Encouraging Improvement in Implements of Agriculture.*

1. To the perſon who ſhall produce at Woburn Sheep-ſhearing, 1806, the beſt and moſt uſeful newly-invented implement—the ſum of *Twenty Guineas.*

As

As it is the intention, in giving this premium, both to encourage, and to introduce to general notice, ſuch improvements in implements of agriculture as appear of real utility, it will be left to a Committee to decide,—1ſt, Which implement produced, deſerves the preference;—2dly, Whether any of them merit the reputation that the acquiſition of a premium might confer. The implements to be brought to the Park-Farm on Tueſday.

2. To the perſon who ſhall produce the plough which ſhall plough half (or a quarter) of an acre of land in the beſt and moſt huſbandlike manner—A *Cup, value Ten Guineas.* To the ploughman holding the ſame—*Two Guineas.*

Due conſideration will be paid to the merit of the implement, to the time of performing the work, the force employed, and the cleanneſs and depth of the furrow.

V. *Premium for Experiments between the Drill and Broad-caſt Huſbandry.*

To the farmer in Bedfordſhire, who ſhall produce the moſt ſatisfactory account of comparative trials between the drill and broad-caſt culture of wheat, barley, or oats, on not leſs than ten acres being in the ſame field—*Thirty Guineas.*

It is required that the farmers who ſhall be candidates for this premium, do give notice to the Duke of Bedford of their intention, that the crops may be viewed while growing, by ſuch perſons as the Duke may appoint.

It is expected that the account ſhould contain a deſcription of the ſoil, the preparation (manure, if any), quantities of ſeed ſown and drilled, hoeings, time and regularity of ripening, harveſting, and produce—verified by ſufficient certificates, to be produced at the Woburn Sheep-ſhearing in 1806.

N. B. It is required that the drilled crops ſhould be kept perfectly free from weeds.

VI. *Premiums for Shepherds.*

To the ſhepherd who ſhall have ſaved the greateſt number of lambs, on the 1ſt of June 1806, in proportion to the number of ewes, being not leſs than 200, put to the ram the preceding autumn—*Five Guineas.*

To the ſhepherd who ſhall have ſaved the next greateſt proportionate number—*Four Guineas.* To the third—*Three Guineas.* To the fourth—*Two Guineas.* To the fifth—*One Guinea.*

Certificates to be ſent in, on the firſt day of the Woburn Sheep-ſhearing, 1806, ſigned by the owner of the flock, and two other reſpectable witneſſes, ſtating the number of ewes tupped, the number of lambs ſaved on the 1ſt of June, and the age of the ewes, viz. the proportionate number of theaves, two years old, three years old, and full-mouthed ſheep.

VII. *Premium for Irrigation.*

To the farmer in Bedfordſhire who ſhall, between the 1ſt of January 1805, and the 1ſt of June 1806, have converted the greateſt quantity of land into water-meadow, not leſs than ten acres, on the beſt and moſt approved ſyſtem—*Fifty Guineas.*

Due notice of the quantity of land ſo converted, and of the expence incurred, verified by ſufficient certificates, to be ſent to the Duke of Bedford on or before the 1ſt of June 1806.

[The premium offered by Sir G. S. Mackenzie, Bart. would probably have been awarded to the author of the following paper, had he not appeared rather hoſtile to the principles which induced the reſpectable Baronet to offer that premium. Satisfied, however, as to the general merits of the Eſſay, and convinced that its inſertion would prove uſeful and beneficial to the great body of our readers, we applied for liberty to lay it before them, which liberty was at once granted in the moſt handſome and liberal manner. We therefore embrace the earlieſt opportunity of bringing it forward, and requeſt a continuance of the author's correſpondence.]

ESSAY ON STORING OF TURNIPS.

——Si quid noviſti rectius iſtis,
Candidus imperti: Si non, his utere mecum. HOR.

THE introduction of turnips into the regular rotation of crops, is the moſt important improvement which agriculture has received in modern times. Previous to that event, the live ſtock were maintained, during ſummer, on the herbage which nature ſpontaneouſly produced on land exhauſted by a previous ſucceſſion of white crops, and overrun with the accumulation of weeds for ages; during winter, on the ſtraw and chaff of the preceding crop, with an occaſional allowance of oats. Under that ſyſtem, the fattening ſeaſon was confined within narrow limits,—the luxuriance of the natural graſs: No animal was fit for the ſhambles till the wane of ſummer; and as ſoon as the paſturage began to decline in autumn, the whole fattening ſtock was hurried indiſcriminately to the market; and their half-fed carcaſes, carefully ſalted, and frugally conſumed, ſatisfied the ſimple deſires of our forefathers till the return of veal and lamb in ſpring. The condition of the breeding ſtock, on their winter fare, was truly deplorable. If the ſeaſon was unuſually ſevere, or if the ſpring was unfavourable to vegetation, vaſt numbers of cattle were literally ſtarved to death; and thoſe which ſurvived, had become ſo feeble and emaciated at the approach of ſummer, as to require no ſmall aſſiſtance

aſſiſtance to *lift* them, ſet them on their legs, and ſupport them to the neareſt field which happened, in the faſhion of thoſe days, to be moſt graſs-proud. *

But, ſince the introduction of turnips, the grand *deſideratum* in the former practice of huſbandry has been ſupplied. From this improvement of their food, young ſtock continue their growth, and fat cattle are prepared for the market during every ſeaſon of the year. Turnips ſucceed the decline of the graſs, and afford ſucculent and nutritious food till the return of ſummer. Our farmers ſeem to brave the diſadvantages of their northern ſituation; to emulate, by their induſtry, the natural reſources of happier climes; and to compenſate, by the ſucculence of their turnip crops, the want of perennial verdure on their fields. But turnips, though poſſeſſing this invaluable excellence, are in ſome reſpects a precarious crop. After eſcaping the ravages of the fly and caterpillar,—after arriving at their full ſize towards the cloſe of autumn, they are liable to be injured, ſometimes to be deſtroyed, by the ſeverities of the enſuing winter. Storing is ſaid, by its advocates, to afford complete ſecurity againſt theſe calamities. In the preſent paper, I ſhall deſcribe the moſt approved methods of ſtoring, and afterwards eſtimate the peculiar advantages of that practice.

Though turnips have been cultivated in this country to a conſiderable extent, for upwards of thirty years, yet ſtoring is a practice of a much later origin, and is ſtill circumſcribed within narrow bounds. From the firſt introduction of that vegetable, ſome intelligent farmers regularly carried off the field, and laid up, under cover, a quantity of turnips ſufficient for two or three weeks conſumption. That practice, affording proviſion againſt the contingency of froſt, has extended itſelf into every diſtrict where the turnip huſbandry is properly underſtood. But the plan of raiſing and ſtoring the whole crop, immediately after harveſt, ſeems to have been adopted firſt in the Upper Ward of Clydeſdale, and

* From the Review of Cumberland Agricultural Report, in the February Number of the Farmer's Magazine, it appears that this word, and this thing, though long ago obſolete in this country, are ſtill pretty common among our ſouthern neighbours. A few weeks ago, in the moſt elevated diſtrict of Tweeddale,

——where rivers, there but brooks,
Diſpart to different ſeas,

and where, in conſequence of their untoward ſituations, farmers cannot be ſuppoſed to be the firſt in introducing or imitating new improvements. Mr Findlater of Newlands was obliged to ranſack all the fallows in his parish, to procure as much wreck (roots of couch-graſs) as would make an embankment againſt an inconſiderable rivulet.

have thence travelled ſlowly into the adjoining counties. Even in the place of its origin, this practice has met with oppoſition; and in no other has it yet gained a complete eſtabliſhment.

There is conſiderable latitude in the ſeaſon of ſtoring. In wet and clay ſoils, to avoid the inconveniences of winter poaching, the ground muſt be cleared of the turnips immediately after harveſting the potatoes; but, in other ſoils, they may be allowed, with advantage, to remain on the ground ſome weeks later, as they continue to ſwell till overtaken by froſt. The ordinary time is about the beginning of November. It is of conſiderable importance to raiſe them on a dry day, that as little earth as poſſible may adhere to their roots, and to ſecure them in the ſtore-heap as they are raiſed, as a ſlight degree of froſt is then found to be highly injurious. As the month of November is proverbial for gloom and rain, it may ſometimes, however, be neceſſary to raiſe them when the weather is wet, or when the ground is moiſt; and, in this caſe, the following practical hint may be of advantage. Graſp the turnips by the leaves, give them a ſmart turn about half round, and then pull them upright from the ground. During this operation, the bulbs revolve on the tap-root as on an axis; the rotatory motion breaks the lateral fibres, and rubs off the adhering earth. It is obvious that this method is much preferable to the common way of raiſing a turnip clumſily in each hand, and of knocking their bulbs together till the adhering earth fall off.

Experience has amply demonſtrated the neceſſity of cutting off the leaves and tap-root (provincially called topping and tailing), and aſcertained the place where thoſe operations ſhould be performed. The ſection ſhould be made cloſe to the bulb. If the bulb itſelf be wounded, rottenneſs is then apt to enſue, and, though it ſhould be prevented, a quantity of the juices oozes out proportioned to the extent of the wound. The root is diſliked by all animals, as its acrid quality occaſions an immoderate diſcharge of bile, with its natural conſequences, gripes and looſeneſs. When any part of the leaves is left, turnips are liable to vegetate on receiving a ſlight degree of heat. As it is impoſſible, in practice, always to hit the point of excellence, and to perform the ſection with mathematical exactneſs, the operators ſhould be careful to err on the ſafe ſide,—to leave part of the leaves or root, rather than to injure the bulb, as it is wiſer to run the hazard of a ſlight vegetation than of intire putrefaction.

1. The earlieſt method of ſtoring turnips, was to ſecure them under roof, as it ſeemed but an extenſion of a practice, previouſly common, of laying on, in freſh weather, a quantity of turnips ſufficient for the conſumpt of ſeveral weeks. The diſadvantages of that method ſoon became evident. It was neceſ-

ſary

fary to pile large quantities, to find houſe-room for the produce of an inconſiderable field; and turnips, in that ſituation, ſpontaneouſly heated and putrefied. There is even danger in houſing ſmall quantities. The heat communicated through a partition wall from the fire of an adjoining apartment, and the breath of cattle, if it have acceſs to the ſtore of turnips, are ſufficient to commence and to ſupport a vigorous vegetation. * The ſprouts exhauſt the ſubſtance, and corrupt the juices of thoſe turnips from which they riſe; and, puſhing up between thoſe turnips which are laid uppermoſt, moiſten them with their ſucculent ſtems, exclude freſh air, by filling up the interſtices, and ſpeedily reduce the whole heap to a putrid maſh.

2. It is well known, that by pitting potatoes in the field, their flavour is better preſerved, and their vegetation is longer prevented, than by ſtoring them in the houſe. From the reſemblance between them and turnips, it has been analogically concluded, that the ſame practice might advantageouſly be extended to the latter. Mr Findlater of Newlands, to whoſe depth of reaſoning, and accuracy of obſervation, the Farmer's Magazine has borne ample teſtimony, is the only perſon, as far as I know, who has fairly made the experiment, and candidly declared the reſult. The ſituation which he choſe was perfectly dry; the pit was about five feet in breadth, and three in depth; the turnips were raiſed into a ridge of the uſual form above the mouth of the pit; one end was filled with common, and the other with Swediſh turnips; the pit was finally ſecured with a thick cover of ſtraw and earth. A few weeks after Hallowday, (when the turnips were ſtored) the middle of the ridge began to ſubſide; the depreſſion continually increaſed, and ſoon became ſo great as to create apprehenſions for the ſafety of the contents: the pit was opened in the beginning of February, and it was found that almoſt the whole of the common turnips were deſtroyed, and that about one half of the Swediſh only was preſerved. A Roxburghſhire correſpondent, in the Nineteenth Number of the Farmer's Magazine, mentions, that turnips may be preſerved in the field, as well as in the houſe, if three or four cart-loads only are laid together, and afterwards covered with a layer of earth, or of ſtraw and earth. This mode of pitting has been carried to a much greater extent, and employed for the preſervation of his whole

* I have been informed, by an intelligent farmer, that turnips ſtored in the end of his byre, grew ſix inches in a fortnight, during ſevere froſt. As putrefaction rapidly enſued, he ſpread the whole depôts upon an adjoining field: the froſt ſtopt vegetation, and one half of the quantity was ſaved.

crop, by Mr Aitken of Callands, in the pariſh of Newlands. The depôt is placed on a level with the ſurface of the ground; its dimenſions are rather ſmaller than thoſe of the common practice, afterwards to be deſcribed; and their cover conſiſts of ſucceſſive layers of ſtraw, earth, and ſtraw. In a late converſation which I had with Mr Aitken junior on this ſubject, I found that this mode, though affording complete ſecurity to the turnips, poſſeſſed no advantage over the common practice, in preſerving their ſucculence, or in retarding their vegetation at the approach of ſpring.

3. From thoſe early experiments, reſults this concluſion, that turnips, to be preſerved, during winter, from running into the extremes of vegetation or putrefaction, require a conſiderable expoſure to the air. On this principle is founded the preſent common practice of placing the depôt in a well-aired ſituation, adjoining to the feeding byre, and of protecting it with nothing but a covering of ſtraw. The ſtore-heaps, from conveniency, are commonly placed in the barn-yard. The turnips are laid down, cart thick, in the form of a narrow tapering ridge; the breadth is about five feet, the height is about four, and the length is perfectly immaterial; the depôt is covered with a thick thatch of ſtraw, and this thatch is finally ſecured with ropes. Common turnips, ſtored in this manner, are kept in good preſervation till the middle of April. Some intelligent farmers have begun to make ſome alterations, and, it is aſſerted, improvements, on this practice. They pay more attention to the dryneſs of the ſituation, than to its nearneſs to the feeding byre, in chooſing a ſpot for the depôt; bed the bottom well with ſtraw; erect a three-bar paling, or place ſheep ſlakes all around, inclining outwards, that the water-drop may be ſet off; raiſe the top of the heap as high as the turnips will lye, and thatch the whole with ſtraw in the uſual manner. In this caſe the angle at the top is acute, as the turnips can eaſily be piled up conſiderably above what is called the *ſquare* of a houſe roof. The depôt is about ſeven or eight feet in breadth at the baſe, and may ſafely be continued to any length required for holding the whole. In recommendation of this plan, there is a probability that turnips are better preſerved, and a certainty that leſs ſtraw is required for thatch, in it, than in the common practice.*

With

* It may not be improper to mention an ingenious mode of ſtoring, founded, however, on the received principles, and practiſed by Mr Aitchiſon junior at Skirling. His farm produces a great deal of meadow hay, which he builds into a long narrow ſtack, adjoining and parallel to his

With regard to Swediſh turnips, the ſame principles are applicable to them, and they are ſtored in a ſimilar manner. From their ſuperiority in hardineſs, they admit of conſiderable latitude in the ſeaſon of ſtoring, and in the dimenſions of the ſtore-heap. Under this treatment they are eaſily preſerved incorruptible for a great length of time. Mr Findlater has uſed them as an evening *bonne bouche* to his milch cows until the 11th of June, when his clover and rye graſs were ready to ſupply their place. No other precaution was taken, than opening the depôt in the courſe of April, and rubbing off the ſprouts which had begun to riſe.

4. The only deviation, on principle, from the common method of ſtoring Swediſh turnips, took place laſt winter at Scotſtown. Captain Mackay, who combines, in an uncommon degree, an extenſive knowledge of agriculture, with an accurate ſuperintendance, and, conſequently, a ſucceſsful management of his farm, aware that Swediſh turnips, on the ground, are indeſtructible by our ſevereſt froſts, and that they, in common with every other ſpecies, require in the ſtore-heap a conſiderable expoſure to the air, reſolved to try how far this principle extended; and, for this purpoſe, formed of them a depôt of the ordinary dimenſions, in a dry, well-aired corner of his barn yard, without any covering, but branches of ſpruce fir, to protect them from the depredations of poultry. The turnips were ſtored, as I learned from his grieve (bailiff), in the beginning of January. Towards the end of March, when I ſaw them, about one half had been taken away for the feeding cattle. Excepting thoſe in the centre and bottom of the heap, none were in good preſervation. The appearance of thoſe on the outſide ſeemed to be an exemplification of the law of putrefaction in vegetables of a firm texture; thoſe parts of the bulbs which formed the interſtices were perfectly ſafe, while the

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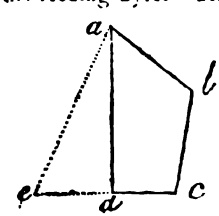
his feeding byre. Its figure is exactly the half of a *hay ſow*, and will eaſily be conceived from the tranſverſe ſection in the margin; the quadrangle *a b c d*, is the ſection of the hay-ſtack, and the triangle *a d e*, is that of the ſtore of turnips. The ſide *a e* is thatched with ſtraw, and ſecured with ropes in the uſual manner. It will eaſily be ſeen that, by this contrivance, there is a ſaving of thatch, equal to about one half of what is required by the common form. The whole management, indeed, of this crop, deſerves high praiſe. Immediately after harveſting his potatoes, Mr Aitchiſon begins to ſtore his turnips; and, as ſoon as the field is cleared, while the leaves are yet freſh, and the ground yet dry, he turns in his young ſtock to 'gather up the fragments which remain, that nothing be loſt.'



the points of contact, ſimilar to the joints in carpentry, diſcovered evident ſigns of incipient putrefaction. From the failure of this experiment, it may be concluded, that Swediſh, as well as common turnips, become more delicate on being raiſed from the ground, and require a layer of thatch to protect them from the inclemencies of the weather.

I now proceed to eſtimate the advantages which the ſtoring of turnips is ſaid to poſſeſs, and to aſcertain in what circumſtances that practice is expedient.

1. *Storing as a ſecurity againſt froſt.* That turnips are overtaken by froſt, and congealed into a lump of ice, during winter and ſpring, is a frequent occurrence. It is well known that cattle, with no other food but frozen turnips, are in great danger of falling off, inſtead of improving. They are difficulted to make an impreſſion with their teeth; and no ſooner have they ſwallowed a mouthful, than they diſcover ſymptoms of univerſal uneaſineſs, raiſe their backs, draw in their feet, and fall a-trembling as if ſeized with the cold fit of an ague. It is univerſally admitted, that the ſtoring ſyſtem affords complete ſecurity againſt thoſe evils: but it is equally certain, that the ſame advantage is attained, in many ſituations, without ſtoring, and without any great degree of foreſight or management.

In the beginning of winter, turnips are not affected by a ſlight degree of froſt. Before it produce on them any ſenſible effect, the cold muſt be ſo intenſe as to form, on water, a pretty thick film of ice. The cauſe of this is obvious. By the cloſe of autumn, if the turnips have been properly ſet out by hand-hoeing, their leaves muſt form a cloſe mantle over the whole field; and this natural covering protects the bulbs from the firſt attacks of froſt. From this circumſtance it follows, that the moſt improvident farmer, whoſe cattle are only ſupplied day by day from the field, will ſuſtain little damage from the tranſient froſts which uſually precede Chriſtmas. After that time, he will be compelled to adopt the precautions employed by his wiſer neighbours, of laying in, during freſh weather, a quantity of turnips that will ſupply his conſumption for two or three weeks. It is ſeldom that our froſts outlaſt that period. If they ſhould continue longer, and if the ſtock of turnips is exhauſted, it will be neceſſary to adopt a practice—often ſucceſsfully tried in Tweeddale, and almoſt univerſal in the more ſouthern counties—of raiſing them frozen as they are in the ground, and of thawing them in a running ſtream, or in a drinking pool. The turnips are raiſed with an inſtrument formed for the purpoſe, a fork with two prongs, ſlightly curved inwards, and ſet perpendicular to the handle. Towards evening, they are carted from the field, and emptied

emptied into the pool. The common practice is to leave them under water till next morning: but an immerſion for two hours is found ſufficient. When taken out, they are as freſh and ſound as if they had never been frozen.

From the preceding ſtatement, it may be concluded, that, in the moſt fertile diſtricts of Scotland, where the climate is more genial, and the weather more uniform, the ſtoring ſyſtem poſſeſſes little eſſential advantage, in point of ſecurity againſt froſt, over the practice of leaving turnips on the ground. A little foreſight will, in moſt caſes, ſuperſede the neceſſity of raiſing them in a frozen ſtate, and even then immerſion in water is an eaſy and effectual remedy. It is impoſſible, however, to adopt this practice, probably, in the Highlands of Scotland, and in many diſtricts of the ſouthern counties. The froſts there ſet in early, are ſevere, and laſting. During the whole winter, there are almoſt continued ſtorms of froſt and ſnow, which muſt prevent turnips from being regularly carried off the field to the beſtial. It is found that turnips, piled together in a houſe, begin to decay after three weeks; and therefore, a ſtock of turnips, equal to the conſumpt of that period, is the utmoſt that a farmer can provide againſt the contingency of froſt. If the froſt outlaſt that time, (which is not an uncommon event), recourſe muſt be had to turnips on the ground; but it is very difficult to raiſe them during intenſe froſt, ſuch as often occurs in winter, in elevated diſtricts. A turnip, thoroughly congealed, when ſtruck with an iron tool, will fly into ſplinters. A pick-axe is neceſſary to raiſe it from the ground, and, even with it, great care is required to raiſe the turnip whole. I have been informed, that a farmer, in an elevated diſtrict of Tweeddale, being under the neceſſity of recurring to his turnip field during an intenſe froſt, found as much difficulty in raiſing the produce of a few yards, as he would have had in ſtoring his whole crop at the proper ſeaſon. It may thence be concluded, that, though the ſtoring ſyſtem is not ſo neceſſary in low-lying diſtricts, as a ſecurity againſt froſt, it is eminently advantageous in more elevated and expoſed ſituations, by rendering the farmer independent of the ſeverities of the weather—by enabling him at all times to ſupply his cattle with ſound and nutritive food.

2. *Storing as a preventive of putrefaction.* Turnips, left on the ground, are liable not only to be congealed into a lump of ice, but alſo to be reduced into a putrid maſh by the inclemencies of the weather. The practice of ſtoring, ſince it has been rightly underſtood, prevents any loſs from putrefaction: it has thence been concluded, that this circumſtance is a decided advantage in favour of that ſyſtem. On examining the matter more

more cloſely, and contraſting the loſs on the ground with the loſs in the proceſs of ſtoring, there will appear abundant reaſon to modify, perhaps to reject, that concluſion.

It is impoſſible to form a general eſtimate of the quantity of turnips annually deſtroyed. The loſs is ſo variable, being affected conſiderably by the ſoil and expoſure of the field, though regulated principally by the climate* and the ſeaſon, as to defy the moſt ſanguine calculator. It is even difficult to approximate to the truth; as the opinions of farmers, on this ſubject, from the difference of their circumſtances, are vague and contradictory. A member of the Eddleſtone Club has declared in your XVII. No. that 'in two years out of three, all our turnips on the ground at Chriſtmas, are entirely loſt by the froſt.' Having unbounded confidence in the veracity of your correſpondent, I readily acquit him of all intention to miſlead: but, as his ſtatement is quite different from the general ſentiment of his neighbours, I am inclined to ſuſpect a miſtake of the pen, or a ſlip of the memory. An intelligent farmer, in this neighbourhood, has aſſured me, that the annual loſs which he ſuſtains is ſeldom conſiderable; and that the whole quantity deſtroyed in the courſe of eight or ten years will not amount to the produce of an ordinary crop. I have been alſo informed by the Rev. Mr Robertſon of Eddleſtone, who has the merit of founding the Farmer's Club, which bears the name of his pariſh, and who has cultivated turnips to a conſiderable extent for nearly thirty years, that he has loſt only two crops in that period; and that the loſs, in both caſes, took place in ſpring. From my own obſervation, I am convinced that the loſs is not ſo great, and ſo early, as your correſpondent has ſtated. It conſiſts with the experience of every farmer, that turnips ſuffer little or no injury till the approach of ſpring. I am convinced that I do not underrate the effects of the weather, when I ſtate, that, on an average of years, even in an elevated diſtrict, one third of the turnips on the ground at Candlemas

* To ſhew the difference of riſks ſuſtained by turnips in different climates, I ſtate the following fact, which I have received from a party concerned.

In the 1784, Mr Dawſon at Frogden hired a field of turnips at Linton in Tweeddale, which were to be conſumed by ſheep. The ſeaſon proved very ſevere. The turnips were ſo hard frozen as to produce a neceſſity of hay-feeding. At the arrival of the thaw, they were ſo generally rotten, that an expreſs was ſent to Mr D. to come and diſpoſe of the ſheep. He obſerved, that whereas at Frogden only one turnip in ten was *hurt*, at Linton only one in ten was *ſafe*.

dlemas only is deſtroyed by froſt *. It is preſumed that thirds of the crop are conſumed during the three months of ter, and without any material loſs. The third which remains :he ground till ſpring, is the only part which ſuffers; conſe-ntly the annual loſs, at an average, may be ſtated at one third ne third, or, reducing the fraction, at one ninth of the whole).

:here is every probability that a much greater loſs than this is ained by the practice of ſtoring. After lying ſome time in ſtore-heap, turnips ſhew evident indications of decay. To eye they ſeem ſhrivelled; to the hand they feel lighter. It he common ſentiment of all who have tried the experiment, : turnips in a ſtore-heap, loſe one third of their weight, by ng—a loſs equal to what I have eſtimated as being ſuſtained :urnips when left in the field. Beſides this inevitable, there nother probable, diſadvantage attendant upon ſtoring. The ips muſt be carried off the field ſoon after, commonly im-liately after harveſting the potatoes; their further growth is vented: whereas, had they been left on the ground, they ld certainly have increaſed in ſize, probably matured and roved their juices, till interrupted by the ſeverity of winter. , perhaps, the ſtrongeſt objection to the ſtoring ſyſtem is the umſtance, that turnips, however carefully ſtored, are leſs pa-ble to cattle, than when taken freſh from the ground. That inferiority is real, and conſiderable, was ſatisfactorily evinced an experiment made in preſence of the Eddleſtone Farmer's b, at their meeting in the firſt week of March laſt. They duced two turnips, the one from a ſound ſtore-heap, and the er freſh from the field. Several cows were turned out ſuc-ively to prove them, and all, after ſmelling at both, began to the turnip from the field; till it was finiſhed, the other was touched. This inferiority cannot be referred to a diminu-n of ſucculence, (for it was diſcovered by the diſtant percep-n of ſmelling), but to a putreſcent flavour, ariſing probably from operations of *topping and tailing*. Though the leaves and tap-t were cut off with mathematical preciſion, ſtill two conſider-e wounds muſt be made on each turnip. The juices ooze out hoſe wounded parts; and fluids, when partly extravaſated (if I may

* On ſhewing this paper to the above mentioned correſpondent, I re-ed an acknowledgement to this effect.—'The general ſentiment of his ghbours is, that one fourth or one fifth of the turnip crop only is royed, by ſpring.' I have ſtated the loſs at one third, as it is ſtill icient for my argument, and as it muſt include the moſt unfavourable ations.

may adopt medical language) loſe their vitality, and run into putrefaction. A putrid cruſt is thus formed on the ſurface of each wound, and muſt be eaten by cattle before they arrive at the ſound interior. Of the nature of this injury, ſome conception may be formed by thoſe perſons, who, from the careleſſneſs of their cook, have accidentally ſeen, or taſted, a potato that had been wounded in the proceſs of harveſting.

From theſe obſervations it is reaſonable to conclude, in general, that the ſeverities of the weather occaſion leſs loſs than the practice of ſtoring. In favour of the latter, however, there is this great advantage, that the loſs is always uniform, can be foreſeen, and provided for; while, in regard to the former, the loſs is perfectly uncertain, being regulated by cauſes of which we have no foreſight, and over which we have no controul. This circumſtance is often very embarraſſing to farmers in expoſed ſituations. In ſome years, if the weather be favourable, the whole crop, as happened this ſeaſon, may eſcape unhurt by froſt; and there may be a ſuperabundance in ſpring, with no adequate ſtock of cattle to conſume it. On the contrary, if the weather be very ſevere, as happened in the year 1784, almoſt the whole turnips, intended for ſpring food, are deſtroyed, and the farmer will find great difficulty, as well as ſuſtain conſiderable loſs, in diſpoſing of his cattle, before they are fully fattened. It may therefore be ſuppoſed, that, in expoſed ſituations, the practice of ſtoring is adviſeable to a certain extent—ſay one third of the crop—that there may be always a certain ſupply for ſpring conſumpt; but a practice has been introduced, which promiſes to render even that extent of ſtoring unneceſſary—of earthing up * the turnips in the drills, with a double mould-board plough, at the end of autumn.

The cauſe of putrefaction does not ſeem to be preciſely underſtood. It certainly is not the froſt *per ſe*. Turnips, congealed into a lump of ice, are perfectly freſh after being thawed in water. In the beginning of winter, they are ſcarcely affected by a black froſt, though very ſevere; and even when the ſeaſon is further advanced, they remain ſafe during every degree of froſt, if the ground is covered with ſnow. It has alſo been obſerved,

* Sir George Montgomery Bart. of Magbiehill, has lately procured from Yorkſhire ſome ſeed of a ſpecies of turnips, which entirely ſuperſedes this operation. Their bulb is always ſituated below the ſurface of the ground. They were diſcovered accidentally growing in a field of common turnips, ſome years ago. They were allowed to ſeed, were afterwards ſown by themſelves, and are now cultivated to a conſiderable extent in the ſouthern parts of Yorkſhire.

ſerved, that a turnip field with a northern expoſure, in all caſes, ſuſtains leſs injury than a field with any other aſpect. From theſe facts, it may be inferred that the ſun acts a part in the deſtruction of turnips, and that his influence is injurious, by producing a ſudden tranſition from cold to heat. Turnips, in the beginning of winter, ſuffer little during black froſt, becauſe their leaves, then ſucculent and expanded, intercept completely the rays of the ſun; and at the approach of ſpring, the ſame event happens, though the leaves are deſtroyed, if ſnow afford a covering to the bulbs in their ſtead. But if a black froſt occur at that ſeaſon, turnips ſuffer an irreparable injury. They freeze every night; the ſun, then pretty high and powerful, thaws them every day. In the morning there is a rapid tranſition from cold to heat; and in the evening there is a ſimilar tranſition from heat to cold. It is well known, that a turnip, when wounded, ſpeedily decays: probably thoſe frequent viciſſitudes of heat and cold, by producing ſudden alternations of expanſion and contraction in turnips, deſtroy their texture, reduce them to the ſtate of dead matter, and ſubject them to the general law of putrefaction.

From this explanation, it will eaſily be diſcovered in what reſpect earthing up is beneficial to turnips. In ſpring froſts, it ſhields them from the burning rays of the ſun, ſupplying the place of their natural covering of leaves, or of the accidental protection of ſnow.* A ſpirited farmer, in an elevated diſtrict of Clydeſdale, has carried ſucceſsfully this principle to its utmoſt extent, by ploughing-under, and whelming, in the bottom of the furrow, that part of his turnips intended for ſpring conſumption. It is believed that the thick incumbent furrow-ſlice, and the reverſed poſition of the turnips, conſiderably retard vegetation at the approach of ſpring: but this advantage, if it really exiſt, is certainly counterbalanced by the difficulty of raiſing them from ſo great a depth. Even earthing up is ſometimes productive of inconvenience in this reſpect. If the froſt be ſevere, it becomes laborious to raiſe them with a pick-axe; if the ground

* An illuſtration of this fact will readily occur to every perſon who has ſeen a field that had been cropped with potatoes, ploughed up in ſpring. Notwithſtanding the utmoſt care in harveſting, a ſmall quantity of potatoes eſcapes the notice of the gatherers, and remains in the ground during winter. Thoſe which lye on the ſurface, and to which the ſun has acceſs, are found, in ſpring, blackened and decayed: thoſe which are buried deeper, and to which the froſt only is acceſſible, ſeem perfectly freſh in the baſkets of cottagers, who eagerly attend the plough on theſe occaſions; and, if that attention is omitted, perfectly quick, from the vigorous ſtems which they ſend forth, at the approach of ſummer.

ground be wet, it is difficult to free them from the adhering earth. It ſeems neceſſary, therefore, (to ſuperſede, entirely, not only the *neceſſity*, but alſo the *convenience*, of the ſtoring ſyſtem), that a ſpecies of turnip were diſcovered poſſeſſing a degree of hardineſs ſufficient to reſiſt every inclemency of our northern climate, and every viciſſitude of our variable weather. In the ſequel, ſome reaſons will be produced to ſhew that this diſcovery is now made.

3. *Storing, as admitting the culture of the more valuable ſpecies of turnips.* Before the introduction of the ſtoring ſyſtem, its advocates argue, farmers were obliged, in expoſed ſituations, to cultivate not the moſt valuable, but the moſt hardy ſpecies of turnips. The yellow garden variety was found to poſſeſs this property, and was cultivated to a conſiderable extent, notwithſtanding the ſmallneſs of its ſize, to ſecure a certainty of ſpring food. But, under the ſyſtem of ſtoring, while this advantage is obtained in its full extent, the greateſt latitude of ſelection is admitted, either as to the greater ſize of the turnips, or as to their greater palatableneſs to cattle. This argument ſeemed concluſive. The yellow garden ſpecies was laid aſide, and the common white, which is much more valuable, was ſubſtituted in its ſtead. From recent diſcoveries it ſeems probable, however, that the ſtoring ſyſtem is unneceſſary to the ſucceſsful culture of the more valuable varieties. The prejudice in favour of the delicate and eye-pleaſing bulk of common turnips, is on the decline. Experience has ſhown that the eye is not the beſt judge, and that bulk is not the ſureſt criterion of excellence in turnips. Facts are rapidly accumulating to encourage a belief, that a ſpecies is diſcovered, hardy, yet valuable, equal to the common in ſize, and ſuperior to it in nutriment.

The firſt improvement on the old ſpecies, was the introduction of the Swediſh turnip, about twelve years ago. Its culture ſoon became frequent, from the notice taken of it, and the recommendations beſtowed on it, in the Bee, a periodical miſcellany, then publiſhing in Edinburgh, by Dr Anderſon, moſt meritorious in its deſign, and very extenſive in its circulation. In the conterminous parts of Clydeſdale and Tweeddale, where it has been cultivated for a number of years, its habits and its excellencies are well aſcertained. Its ſuperiority in feeding, its vigorous reſiſtance to every inclemency of the weather, and its obſtinate retention of ſucculence after vegetation commences in ſpring, entitle it indiſputably to rank as the farmer's lateſt ſpring food: while its affection for a ſoil rich by nature, or enriched by manure; its inferiority as a fallow crop, from requiring to be early ſown, and from covering imperfectly the ground with its

its leaves; its deficiency of produce, even after making every allowance for the richneſs of its juices, and the denſity of its texture; render it an object not ſo much of choice, as of neceſſity, and limit its culture to the extent of a ſuccedaneum, when every other ſpecies is ſhrivelled or putrefied. It is poſſible to preſerve common turnips, in tolerable condition, till the middle of April: but, as they loſe greatly when the ſeaſon is ſo far advanced, and as they are preſerved with difficulty if the weather be genial, it may be more adviſeable to have all of them conſumed a month earlier, and to raiſe of Swediſh turnips as many as ſhall be required to ſupply the conſumpt from the middle of March, till the end of ſpring. In expoſed ſituations, they may advantageouſly be cultivated to the further extent of affording partial aid to milch cows in the beginning of May, as the paſturage is then ſeldom forward enough to ſupply them with ſucculent food. When preſerved ſo very late, even Swediſh turnips are apt to decay, and, in conſequence, to communicate a diſagreeable flavour to milk and butter, unleſs they are topped and tailed when raiſed from the field, and immediately houſed in a cool ſituation.

Another ſpecies has lately been introduced into this diſtrict, which promiſes to be of incalculable advantage, as they ſeem to poſſeſs, in an eminent degree, the characteriſtic excellences of the common and Swediſh turnips. They reſemble, in colour, the yellow garden variety. They have been obſerved, for two or three years paſt, growing in fields of common turnips, and are incidentally noticed by ſome of your correſpondents, in the two laſt Numbers of the Farmer's Magazine. But the only perſon, as far as I know, who has cultivated them to any extent, and for a length of time, is Captain Mackay of Scotſtown. * My own knowledge of them is confined to the obſer-

* He learnt that there was cultivated in the county of Cumberland an excellent ſpecies of turnip, and purchaſed a pound of its ſeed at Keſwick. Upon ſowing it next ſeaſon, he obtained turnips which anſwered his higheſt expectation. Soon after, he received a military appointment which required his abſence from home, and which he filled till towards the cloſe of the late war. On his return, he found that his grieve, notwithſtanding his expreſs injunctions, had failed to preſerve that ſpecies; but upon ſearching a drawer where turnip ſeed uſed to be kept, he found ſome lying looſe in the bottom, which, when ſowed, produced the wiſhed for turnips, mingled with every other ſpecies; and he has ever ſince extended its culture, and will raiſe as much ſeed this ſummer as ſhall ſupply a whole pariſh. As the

vations which I made, and to the information procured at Scotſtown, in March laſt. From the grieve, or ſteward, I learnt, that they had been ſown at the ſame time with the common turnips, and that they certainly exceeded them in ſize. The latter being all carried off the field, and conſumed by cattle, it was impoſſible to inſtitute a compariſon; but from the appearance of the yellow ſpecies, I am inclined to believe the grieve's opinion was correct. All who have found them among common turnips, agree that, from the ſame time of ſowing, they equal them in ſize. It may thence be concluded, that the yellow turnips poſſeſs, in full perfection, the peculiar advantages of the common white, as they admit of late ſowing, and produce well-ſized bulbs. They alſo ſcarcely ſhrink from a compariſon, even with the higheſt excellences of the Swediſh ſpecies. Captain Mackay is ſo firmly convinced of their hardineſs, that he now uniformly uſes them as an intermediate ſupply in the beginning of ſpring, between common and Swediſh turnips. About the middle of March, I examined a part on his field, and found ample reaſon to juſtify the propriety of that management. After conſiderable ſearch, I noticed only two bulbs that were injured; but the injury in neither ſeemed to proceed from the inclemencies of the weather; the rottenneſs was only partial, occaſioned evidently by a diſeaſed root in the one, and by a deep cut in the other. I obſerved alſo ſeveral wounded deeply by hares: but the part which remained was uniformly freſh. Though laſt ſeaſon was very favourable to turnips, and therefore not a fair trial of their reſiſtance to froſt, it muſt be admitted, from the facts now ſtated, that yellow turnips poſſeſs a hardineſs, ſimilar in kind, if not equal in degree, to what has been aſcribed to Swediſh. In proof of their richneſs, there are facts equally deciſive. They evidently, in point of weight, flavour, and ſucculence, hold an intermediate place between the Swediſh and common varieties. It is well known that hares are admirable connoiſſeurs in turnip matters, and ſo great epicures, as not to touch the common ſpecies, if the Swediſh are within their reach. I have already ſtated, however, that they did not diſdain to feaſt heartily on the yellow turnips, though they were ſeparated from the Swediſh by a furrow of a few inches in depth, and of a few feet in breadth. A ſimilar reſult was obtained, when both ſpecies were ſubmitted to the judgment of cattle. I ſliced down ſeveral turnips of each, and, having counted the number of ſlices

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the Farmer's Magazine is univerſally read, I would requeſt, through that medium, our Cumberland brethren to communicate the hiſtory, the culture, and the excellences of the field yellow turnip.

ſlices reſpectively, put them all into a baſket. After preſenting them ſucceſſively to ten cattle, I found that about one half of the original quantity was conſumed, and that the remainder, left in the baſket, contained an over-proportion of Swediſh ſlices. For the preference there ſhewn to the yellow ſpecies, though certainly ſurpaſſed, in richneſs of flavour, by the Swediſh, I can account only, from their ſuperiority in ſoftneſs and ſucculence. The hard ſkin of the Swediſh has always been conſidered as a diſadvantage in feeding; whereas the ſkin of the yellow ſpecies, being thinner and ſofter, ſeems better adapted to the imperfectly-cutting jaws of black cattle. In their further recommendation, it may not be improper to ſubjoin, that though Captain Mackay now reſerves them for ſpring food, he, at firſt, conſumed them by his milch cows, in an earlier part of the ſeaſon; and that he procured from this food, in the middle of winter, butter with the high colour and rich flavour of midſummer. From theſe facts it may be inferred, with a degree of certainty, that the ſyſtem of winter ſtoring is unneceſſary to the ſucceſsful culture of the more valuable ſpecies of turnips; that delicacy, ſo far from being inſeparable from, is inconſiſtent with high excellence; and that the yellow ſpecies, though equal to the common in ſize, and ſuperior in point of nutriment, is poſſeſſed of ſufficient hardineſs to reſiſt the inclemencies of winter without the aid of artificial protection.

4. *Storing, as admitting the introduction of wheat on a turnip fallow.* From the preceding obſervations, it ſeems evident, that the ſtoring of turnips is neceſſary only in expoſed and elevated diſtricts, to attain ſecurity againſt the inclemencies of the weather; and that, in every more favoured ſituation, it is directly injurious, from requiring turnips to be raiſed from the ground before they have attained their full growth; from the evaporation of their juices while they lye in the ſtore-heap; and from their acquiring a putreſcent flavour, and becoming unpalatable to cattle. Even in the latter, however, that ſyſtem is attended with one advantage, which more than compenſates its numerous evils,—the facility with which it enables the farmer to introduce wheat on a turnip fallow.

There can be no doubt, that a turnip fallow, in moſt caſes, is a ſufficient preparation for wheat. A bare fallow ſeems indiſpenſably neceſſary only on wet and ſtubborn clays: but this is a ſpecies of ſoil moſt unfavourable to the culture of turnips. If they are forced to grow in ſuch a ſituation, they cannot ſerve as a ſubſtitute for ſummer-fallow; and the ſtoring ſyſtem muſt be recurred to immediately after harveſt, not to make way for ſowing wheat, but becauſe it is impoſſible, in our moiſt climate, to carry off turnips from ſuch lands during winter. But on a dry

ſoil, of every ſpecies from a light ſand to a rich loam, which turnips chiefly affect, every advantage of a ſummer fallow is obtained by cropping with turnips: the frequent ploughings before the ſeed proceſs, and the various hoeings, after the plants appear above ground till they cover it with their leaves, effectually pulverize the ſoil, and clear it of weeds. On light lands of this deſcription, if wheat is intended to follow turnips, it may be ſown at an early, and at its proper ſeaſon. If the proceſs of ſtoring commence immediately after harveſting the potatoes, the ground may be cleared to receive the wheat in the beginning of November. When it is wiſhed, however, to derive the full benefit of the turnip crop, it will be neceſſary to delay ſtoring ſome time longer, till the bulbs arrive at their full ſize: yet, even in this caſe, it will be eaſy to put the ground in order during the courſe of winter, and to embrace the moſt favourable ſeaſon of ſowing it with ſpring wheat. It is obvious that, if ſtoring be omitted, wheat after turnips is a precarious crop. If the ground is only cleared, as turnips are required for the conſumpt of cattle, they muſt be regularly carried off during the whole of winter, and the beginning of ſpring. The carriage of ſuch a bulky crop, in our moiſt climate, and during our wetteſt ſeaſon, inevitably occaſions a degree of poaching on almoſt every ſoil, and greatly retards the operations of ploughing, ſowing, and harrowing, in ſpring. Unleſs the weather be very favourable, the ſeaſon is too late for ſowing wheat, and it is conſidered as more advantageous, in general, to introduce barley or oats after a turnip fallow. The ſtoring ſyſtem, therefore, is advantageous, in the exact proportion that a crop of wheat is ſuperior to a crop of barley; and this profit muſt greatly overbalance the various loſſes which turnips ſuſtain in that proceſs.

The reſult of the preceding obſervations is, that the ſtoring of turnips, abſtractedly conſidered, is attended with direct and unavoidable loſs: but, when viewed in reference to the climate and agriculture of Scotland, is neceſſary in unfavourable ſituations, and eventually advantageous in every other;—neceſſary in high lands, where the ſeverities of winter prevent turnips from being regularly carried off the ground to ſupply the conſumpt of cattle; and advantageous, in low lands, by enabling the farmer to introduce wheat after turnips, where he could otherwiſe obtain only a crop of oats or barley.

G.

FOR THE FARMER'S MAGAZINE.

Extracts from FOURCROY ON THE PHILOSOPHY OF VEGETATION, *tranſlated and abridged by a Correſpondent.*

(Continued from page 301.)

PART II.

Of the Influence of Soils, and their Amelioration, upon Vegetation.

1. From obſervation of vegetables fixed in the earth, mankind in all ages muſt have believed, that the ſoil in which their roots are placed, furniſhes the principal materials of their nouriſhment; and that from the ſoil they derive all the ſenſible qualities by which they are diſtinguiſhed. Hence the ancient opinion, of the relation between particular ſoils and the nature and qualities of their vegetable productions, has almoſt always been a chief fundamental doctrine in agriculture. Theſe ideas, of the influence of the ſoil to encourage particular plants, or to communicate to each plant a peculiar character, have been handed down to us from ancient times; and every agriculturiſt of the preſent day is fully perſuaded, that vegetables extract diſtinct characters or qualities from the particular ſoil in which they grow, excluſively dependent upon the nature, qualities, and circumſtances of that ſoil—ſuch as characteriſtic taſte, peculiar flavour, and the like.

2. Such numerous examples, eſtabliſhing the opinion, that the qualities of the ſoil are communicated to the plants which it produces, render the fact indiſputable. To this circumſtance a peculiar mode of expreſſion has been appropriated; and vegetable productions are ſaid to taſte of the ſoil or diſtrict in which they grew. Thus grapes and other fruits, and eſpecially leguminous plants, ſtems, leaves, and roots, all poſſeſs certain peculiarities in taſte, flavour, conſiſtency, and colour, evidently modified by the qualities of particular ſoils in which they grow. This may even be extended to wines, and other productions from the fermentation of vegetable matters, reſulting from ſome hidden alteration in the vegetable juices. It is well known that wines participate in the nature of the ſoils on which the grapes were produced: And under the technical term of *bouquet*, the difference is remarked, of thoſe produced from ſoils that are dry, ſandy, ſilicious, flinty, moiſt, too rich, or too ſtrong. Theſe general facts, which cannot be doubted of, and the particular diſpoſition of each peculiar ſoil to produce certain plants in preference to others, or in greater perfection, unanſwerably prove, that every particular ſoil has a direct influence upon the nature and qualities of ſuch vegetable productions as grow there.

3. It is obvious, that what are uſually called earths, or ſoils, are extremely compounded maſſes, leſs or more in a pulverulent form, of very complicated mixture. Conſequently, before we can ſatisfactorily determine the peculiar actions which they exert upon vegetables growing in them, ſo as to modify the greater part of their qualities, it is previouſly requiſite to inquire into the operation, in this reſpect, of earth ſtrictly ſo called, and then to diſcover the effects of foreign ſubſtances upon the earthy particles with which they are mixed. The one is the real baſis of the ſoil, or the ſoil itſelf ſtrictly ſo called; the others are to be conſidered more or leſs as manures, which will be treated of in the next ſection.

4. We ſhould ſeek in vain, among the earths in which plants grow, for a pure or ſimple earth, according to the preciſion of chemical language. Even the fineſt, drieſt, and moſt barren ſand, which approaches neareſt to ſilicious earth properly ſo called, conſiſts always of a mixture of quartz and alumine, and frequently has a ſmall addition of calcareous matter. The chemiſts who have at firſt applied this ſcience to inveſtigate the principles of agriculture and the philoſophy of vegetation, have minutely examined the manner in which ſeeds thrive in each ſpecies of ſimple earth chemically prepared, ſo as to aſcertain how far each pure earthy ſubſtance contributes to vegetation, or the nouriſhment of plants. Though, from theſe experiments, it has been aſcertained that ſeeds germinate and grow readily in barren earths, thoroughly waſhed, perfectly inſipid, and entirely deprived of every portion of ſaline matter, providing they are ſufficiently watered; it is likewiſe thoroughly proved, that no one of theſe earths excluſively or powerfully encourage vegetation. Seeds may likewiſe be made to germinate in metallic powder or filings, on ſponges, cotton, flannel, or ſuch like ſubſtances, if ſufficiently ſupplied with water: But, by all theſe means, vegetation either only continues for a ſhort while, or at leaſt does not arrive at its proper termination, * unleſs with ſome delicate ſmall plants, which only require a ſmall portion of nouriſhment.

5. From theſe laſt mentioned experiments, it has been argued, that the ſoil only ſerves as a ſtation or prop for the plants which grow in it, receiving and holding faſt their roots; that it only ſerves to ſurround thoſe roots with water and nouriſhing materials, of which they have need, and of which it is merely the receptacle or conveyance; that all that is requiſite in the ſoil, for fertility,

* Though not expreſſed by the author, I ſuppoſe he underſtands, by the proper termination of vegetation, the perfecting of fertile ſeeds.—*R. r r.*

fertility, is, that it be eaſily penetrable by the roots, and ſufficiently retentive of water to keep them always moiſt; ſufficiently divided, to permit the air, and ſome light, to paſs between its particles; and not too much compacted, to compreſs and injure the tender fibrils of the roots. It muſt, however, be allowed, that ſome ſmall portion of the earth itſelf penetrates by means of the roots, and is carried into the internal organization of the plant, by that abſorptive power which belongs to their organs, either in conſequence of extreme diviſion of the particles of the earth in which they grow, or of actual ſolution in the water which they abſorb.

6. In a diſſertation on ſoils, (*terræ geoponicæ*), the celebrated Bergman concludes, from conſideration of a great number of experiments, that the beſt ſoil for vegetable production, ought to contain, two parts of calcareous earth, one part of magneſia, four parts of alumine, and three parts of ſand. All the modern experiments have diſtinctly and certainly proved, that ſalts, properly ſo called, contribute nothing towards vegetation or fertility; and that, on the contrary, there is reaſon to believe they are regularly and conſtantly injurious; that pure ſimple earths, by themſelves, or mixtures of theſe, each in a pure ſtate, are not capable of producing fertility; and that the moſt fertile ſoils loſe all their properties of fertility, by expoſure to the action of fire. Theſe laſt facts are chiefly aſcertained by the experiments of Gioberti of Turin.

7. From all the experiments on this ſubject, which have been infinitely varied, reſpecting the influence of ſoils upon growing plants, one uniform, regular, and conſequently certain concluſion is derived, that of all the earthy ſubſtances to be found in the mixed matter called ſoil, calcareous earth moſt certainly contributes chiefly to fertility. On this point there exiſts nothing equivocal, uncertain, or contradictory. It has been alleged that this circumſtance ariſes from moſt calcareous bodies retaining ſome portion of their animal original, which acts the part of a manure. In my opinion, I have no doubt that this ſuperior fertility of calcareous earth is derived from the carbonic acid which it contains. However this may be, it is certainly true, that of all the earthy bodies, or earthy ſalts, calcareous matter is decidedly the moſt uſeful in agriculture: Hence agriculturiſts frequently employ it to renew the fertility of their exhauſted or impoveriſhed ſoils.

8. Although calcareous earth is both the moſt common and moſt uſeful amelioration which can be employed, and thence, that marl holds the firſt rank even among manures; yet the art of ameliorating ſoils, in its full extent, muſt not be confined to one

procedure, but muſt be varied, according to the nature of the ground or ſoil upon which the improving agriculturiſt has occaſion to operate. Marl, or chalk, are certainly well adapted to improve land that is too ſtrong, and which contains too much clay: But a ſoil which is already too uniformly calcareous, or too ſandy, may on the contrary require the addition of clay to communicate to it that proper degree of tenacity which it wants, that it may not dry too quickly *.

R. r. r.

(To be continued.)

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Benefit which Farmers would derive from the Study of Botany.

SIR,

ON reading a letter ſigned S. L. p. 429. vol. V. of your Magazine, I could not help regretting the inability of its author to convey the information he wiſhed to diſſeminate. Had the botanic names of the plants been given, the way would have been open to further inveſtigation; but till that is done, the knowledge of their qualities muſt remain with himſelf.

In the ſame volume, p. 453., *Agricola* ſays, 'As parſley is a perennial plant, it will anſwer for fields that are to be laid down for paſture for a conſiderable time.' It is known that parſley (*apium petroſelinum*) is biennial: a few plants, out of many, may live three or four years, eſpecially if not allowed to run to ſeed; a circumſtance that happens frequently with many biennial plants.

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* I muſt be permitted here a few obſervations. The reaſoning of the author in this place, though perhaps juſtly chemical, is in my opinion not very ſtrictly practical. Soils that are too tenacious, though certainly much improved by lime, or other calcareous matter, would be greatly ameliorated by ſand, if not too expenſive: Shell ſand, in ſuch caſes, were perhaps the very beſt poſſible improvement.

Calcareous ſoil, of courſe, needs no calcareous addition: For it, clay, and perhaps ſand, would be an excellent amelioration.

Soil too ſandy will certainly be conſiderably improved by clay; but, on ſuch, calcareous matter is likewiſe highly uſeful; perhaps clay marl in large doſes is the beſt of all. Yet I believe no ſoil whatever ſo ſoon exhauſts or loſes all kinds of manuring as ſand. It is corroſive, and proverbially ſaid to devour manures; becauſe they only contribute to vegetation.

Of all manures, clay to ſand, or ſand to clay, are the moſt expenſive, as requiring ſuch enormous quantities, to ſerve any uſeful purpoſe: Theſe are in a manner to create ſoil.—*R. r. r.*

plants. Therefore, as *Agricola*'s information tends to miſlead, I beg leave to correct his error as to the duration of the plant; and ſtate it as a further proof of the need of better information. I do not pretend to ſay how far it may be proper to cultivate parſley as food for different animals; experiments are the only way to aſcertain that point. It is already known to be eaten with avidity by ſeveral; but the extent of its uſefulneſs remains to be known. With regard to its cultivation, I rather think *Agricola*'s information is not correct. If ſown in mixture with graſs or other plants, or by itſelf in the broad-caſt manner, there can be little hopes of ſucceſs, as the ſeed lies long in the ground before it comes up; and when it does ſpring, the plants are for a conſiderable time very weak, ſo that they would be choked by others,—either weeds, or thoſe intended to riſe with it. Therefore the cultivation of it, with any hopes of ſucceſs, muſt be in drills, where it can be kept clear from weeds.

In your Twenty-firſt Number, p. 53, I obſerve *Agriculture Amicus* gives an anecdote of toads being fond of parſley, and recommends to cultivate the curled in preference to the common. The curled variety is no doubt the moſt beautiful, but it does not appear to be the moſt hardy; for I have frequently obſerved the curled to die, where the other ſtood in winter. As I do not obſerve any of your correſpondents has been very particular in their remarks on this plant, I with the more freedom venture on communicating the above; and am certainly of opinion, that experiments to aſcertain the influence of it ought to be made.

The above, with what your correſpondent *Miſo-Mixis*, in your Twenty-firſt Number, p. 1, obſerves relative to the ſelection of grain for ſeed, has led to think that a more extenſive knowledge of plants among agriculturiſts would be highly beneficial, and that it is more eſſentially ſo to them, than to thoſe employed in horticulture, as the operations of the former are conducted on a larger ſcale than thoſe of the latter: at any rate, there are ſufficient proofs that both ought to have more knowledge of the nature and qualities of plants. Every farmer ought to make it his ſtudy to know the duration and qualities of the different plants that grow on his farm, there being no doubt but every plant is uſeful in ſome ſituation or other; and what is commonly termed weeds, is only a plant out of its proper place. By obſervations and experiments, he may diſcover which is moſt nutritious for food, or uſeful as medicine, or whether injurious or poiſonous to different animals; hence be able to judge in what proportions, and in what ſituations, they ought to be encouraged. But before we can think of communicating their uſes, or the reſult of our experiments to others, we muſt firſt know how to diſtinguiſh

ſtinguiſh the plants by ſuch names as are univerſally known, as is evident from what has been wrote by S. L.; for it cannot be known what plants he means by ſuch names as *bent*, *ling*, *deer-hair*, *moſs-crop*, &c.; whereas, had the generic and ſpecific names been given, it would have ſaved his elaborate deſcription, and at once enabled his readers to trace out what was meant.

Many farmers and others might acquire, by no tedious application, as much knowledge of botany as might be of great uſe; and others, who may have a favourable opportunity and a turn for it, may acquire a more extenſive knowledge, and be highly uſeful to themſelves and others. By a knowledge of the ſexual ſyſtem, the farmer would be better enabled to diſtinguiſh and improve the different plants on his farm. The ſtudy is amuſing, as well as uſeful; it would naturally give an inclination to examine minutely every plant he caſts his eye on, eſpecially if it ſeemed to differ from what is common: by that, he may obtain new varieties better ſuited to his purpoſe, and be encouraged to make experiments in order to produce new varieties. Alſo, by examining plants in every ſtage of their growth, he will acquire a more accurate knowledge of vegetation, may diſcover the cauſe of diſeaſes, and find out a remedy.

The ſubject of *Miſo-Mixis*'s letter on the ſelection of ſeeds, is of the greateſt importance to all cultivators, the general neglect of which would appear to indicate that the import of it is not generally known. The varieties of different ſpecies of plants in cultivation are numerous; many of them are not worth cultivating, eſpecially where, by a little attention in the power of every one to beſtow, ſuperior ones may be ſelected. While theſe are continued to be cultivated in mixture, the evil continues to increaſe. Many of the graſſes, among which I include the oats, barley, wheat, &c. run into endleſs varieties, as do cabbages, turnips, peas, beans, &c. From the ſportiveneſs of theſe and many others, it is obvious that the greateſt care is neceſſary to prevent the ſelect ſorts from being adulterated by the diſperſion of the farina of others. The intention of nature in producing theſe varieties would appear to be that of affording ſorts ſuited to different ſoils and climates, and that man ſhould aſſiſt in cultivating and improving what ſhe has ſo profuſely furniſhed. Hence the greateſt attention ſhould be beſtowed in looking for and improving new varieties. When an ear, or a few ſeeds, &c. of any of the kinds we wiſh to cultivate are obtained, they ſhould be put in a garden, and brought forward till enough is obtained to be worth cultivating in the field: and, to produce new varieties, experiments ſhould be made by ſowing two or more kinds in the ſame ſpot, from which there will be a chance of obtaining one or more kinds different, and perhaps ſuperior to their parents.

Great

Great attention has been beſtowed on rearing the beſt kinds of domeſtic animals: had not this been the caſe, the horſe and the ox, &c. would in all probability have remained as they were originally found; for theſe improved varieties are not ſpecifically diſtinct from their original, which, if allowed to breed promiſcuouſly, would (although many valuable varieties might be produced) degenerate, and conſiſt of an infinite variety of animals not at all ſuited to the purpoſe wiſhed for. To the truth of this, I ſuppoſe every farmer or breeder will aſſent. The ſame being the caſe with plants, it ſurely muſt be the intereſt of cultivators to beſtow ſimilar attention.

If any thing can be gleaned from the above hints worth inſerting in your valuable Magazine, you are the beſt judge to determine. I am, Sir, your moſt obedient ſervant,

M. S.

[A reſpectable friend, who correſponds with the Board of Agriculture, wiſhing to learn the mode uſed in the county of Kent for feeding boars, and preparing and curing them afterwards for *braun*, ſent ſome queries to the Board on theſe ſubjects. Lord Sheffield, the Preſident, ordered inquiries to be made; and the following letter from a gentleman near Canterbury, with the queries and anſwers, is inſerted, at the requeſt of the reſpectable gentleman with whom the inquiry originated.]

On the Feeding of Boars, and Curing Braun.

LETTER TO LORD SHEFFIELD.

My Lord, *Kent, 21ſt December* 1804.

I am almoſt aſhamed to ſay I duly received the letter the Honourable Board did me the honour to ſend, dated the 22d June laſt, containing queries on the ſubject of braun. I have not, however, been able to procure any anſwer from the trade, who make a very great ſecret of their buſineſs; and am therefore only able to return ſuch anſwers as have occurred to me in reſiding near a place where many boars are every year fattened, and believe I am correct in what I have preſumed to anſwer. If they are of any uſe to the Honourable Board, I ſhall feel myſelf happy in having communicated them. I have the honour to be, my Lord, your Lordſhip's moſt obedient and very humble ſervant,

To the Right Honourable Lord Sheffield. A. G.

Query 1. At what age are the boars put to fatten?
Ans. At all ages. Two years is preferred.
Query 2. Are they not cut before fatted?
Ans. No, no!!

Query

Query 3. On what food are they fatted?

Ans. Beans generally. One maker is giving boiled potatoes this ſeaſon. Sulphur is given in their water.

Query 4 Are they fatted in a caſe, or looſe?

Ans. They uſed to be put ſingle, in a caſe, ſo ſmall, they could not turn round, only juſt get up to eat, or lye down; but ſome are now put up, eight together, in larger pens, and are found to feed better than when ſingle.

Query 5. How long? and, *Query* 6. At what time of the year put to fatten?

Ans. The drove of boars come to Canterbury about the 15th of October, and are immediately put up; and they kill from that time till a fortnight after Chriſtmas, as they come forward in ſucceſſion?

Query 7. & 8. What breed? and what ſize of boar is preferred?

Ans. They buy of all breeds; prefer a large ſize, with a full deep ſhoulder, as that part comes to moſt braun.

Query 9. What is the operation of preparing or curing?

Ans. Boiling, ſeaſoning, rolling the collar in a cloth, binding it round with tape, &c. &c.

Query 10. What is the general value *per* ſtone, before fatting?

Ans. They buy by head, from two to three guineas, as buyer and ſeller can agree. Many farmers regularly ſell their boars to the ſame maker every year, and leave the price entirely to him.

Query 11. Value fat?

Ans. I do not know.

Query 12. What is the uſe, weight, and price of the collars?

Ans. Two ſhillings *per* lib. A good collar will weigh about 30 lib.

Query 13. What uſe is made of the hands, gammons, head and feet?

Ans. The heads are ſold as dogs meat; knuckles and feet ſold to the poor, &c. The lean parts made into ſauſage meat, and ſold at ſixpence *per* lib.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

The Utility of granting Bounties on the Exportation of Corn demonſtrated; with ſome Remarks on the Opinions of Dr Smith and his Followers.

SIR,

IT will be fortunate if the '*Outline View*,' &c. inſerted in your Magazine of May laſt, ſhall give riſe to a full diſcuſſion of the curious and important point which is the ſubject of it. Dr Smith,

Smith, long before his book was publiſhed, was in the habit, both in his lectures and in converſation, of maintaining the hurtful tendency of bounties on every ſpecies of commodities, and, as far as I know, was the firſt writer who has in a deciſive manner reprobated them. Whoever has read the fifth chapter of the fourth book of his Wealth of Nations muſt know, that he conſiders the production of a quantity of corn, ſufficient to leave an overplus for exportation, as abſolutely eſſential to 'the plentiful ſupply of the home market.' The production of this overplus, however, he contends, cannot be promoted by a bounty on the exportation of corn, which he condemns, for the following reaſons: *Firſt*, Becauſe, upon the general principle applicable to bounties on all other commodities, a greater part of the induſtry of the community is thereby forced to a leſs beneficial employment than it would otherwiſe go to: and, *ſecondly*, Becauſe, in the particular inſtance of corn, it does not promote the end intended; for though its immediate effect be to raiſe the price of corn in the home market, yet, as the price of corn regulates that of every other neceſſary, the price of theſe muſt, of courſe, riſe along with it; and, conſequently, the farmer reaps no benefit; becauſe, what he receives from the increaſed price of his corn, he is obliged to pay in the augmented price of the neceſſaries for which he has occaſion, which leaves him exactly in the ſame ſituation he was before; and, beſides, the intention of the bounty is altogether defeated, becauſe it cannot, in any degree, be the cauſe of a ſuperior quantity of corn being raiſed. This, if I underſtand it rightly, is Dr Smith's argument, the component parts of which it ſhould ſeem to be ſomewhat difficult to reconcile; for, if the bounty neither can occaſion the production of a greater quantity of corn, nor be of any benefit to the raiſer, it is not eaſy to ſee how it can force a greater quantity of the induſtry of the country from a more profitable employment into that channel, than would otherwiſe go there. Whether there be any particular profeſſion that is more favourable to the virtue and rectitude of conduct of the individuals who exerciſe it than another, it is the buſineſs of moraliſts to determine; but no man will probably deny that the profeſſion, if there be any ſuch, which contributes the moſt to the regular and certain ſupply of food, is the beſt calculated to promote the happineſs and ſecurity of the ſtate: till the fund of proviſion for the maintenance of an individual ſomewhat exceeds his annual expenditure, he never can be ſaid to be certain of ſubſiſtence; the ſame holds good of the nation of which he is a member —The moſt determined enemy to the bounty allows this overplus to be the moſt deſirable object for any ſtate; and the ſimple queſtion ſeems to be, Has the bounty on corn a tendency to occaſion this overplus? Some

Some have told us that the world, or at leaſt Europe, is a great commonwealth, in no one part of which corn can ever be wanting while it exiſts in another. Others inform us, that corn is not to be regulated on the ſame principles as any other commodity; while, immediately after, they bring both vegetable and animal, and even human life into the compariſon with it. All, however, that ſeems neceſſary is, to inquire what is the moſt probable means to increaſe the production of *any* commodity; and thoſe moſt unfriendly to the bounty will not ſurely pretend, that corn ſhould be placed on a worſe footing, conſidered merely as a manufacture, than any other. No perſon, one would think, can be diſpoſed to deny, that the produce of any particular manufacture is increaſed by encouragement, and by being particularly favoured. To what is it but to this, that Dr Smith attributes the increaſe of the induſtry of the towns over that of the country? and what is this, in other words, but a bounty?

A duty, for inſtance, is laid on ſugar, which, at leaſt, till very lately, was not only drawn back on exportation, but alſo a conſiderable ſum more, in the form of a bounty: a tax, for example, is laid on manufactured cotton cloth, all of which, and perhaps, as it may be managed, ſomething more, is drawn back on exportation. No one ever doubted that this encouraged the production of a greater quantity of theſe goods, and at a cheaper rate, than if no part of the tax had been drawn back;—all this Dr Smith and his followers think very reaſonable. But when a tax, which is now fixed, it may be ſaid, at 4s. per pound, comes to be laid on land, they conſider it as a moſt hurtful regulation, and moſt adverſe to the increaſe of the production of corn, that any part of this tax ſhould be drawn back on the very ſmall portion of this manufacture which, both poſitively and comparatively with other manufactures, is exported. Upon what principle of juſtice or equity, it may be aſked, is this founded? But it is not the land-tax alone, which, upon a fair compariſon with the taxes paid by other manufactures, that of corn is entitled to draw back. Tithes and poor-rates are direct taxes which it pays, and to which no other manufacture is ſubjected; why is not it as well entitled to a return of theſe, in proportion to what it exports, as they are to that of their cuſtoms or exciſe which they have paid? and why is it to be denied the ſame encouragement to carry its overplus to a foreign market that they have? or by what rule is it contended, that what tends to create plenty and cheapneſs in the one caſe, will not have the ſame effect in the other? A bounty makes every particular thing to which it is applied plentier, and of courſe cheaper; even men and women, nay, ſoldiers and ſailors, and certainly ſtateſmen, as a late witty writer has brought them forward,

ward, are increaſed, nay created, by a bounty: and, unleſs it can be clearly ſhown that there is ſomething in the nature of corn which places it, in this reſpect, in a different predicament from other manufactures, it is obvious that, in a well regulated ſtate, they ſhould be placed on the moſt perfect equality; and, if the circumſtances of that ſtate admitted of the free exportation and importation of every ſpecies of commodity, duty free, the landholder would, with a bad grace, talk of a bounty for his: But, when almoſt every thing he has to buy is encouraged by a bounty, it ſeems hard that what he has to ſell ſhould be denied the ſame advantage. It falls then to be conſidered, how far there is any thing in the nature of corn, which renders the effect of a bounty on it, different from that on any other ſpecies of commodity: but, previouſly, it may be noticed, that the firſt objection, 'that the bounty on corn has the tendency to draw a greater part of the induſtry of the country from a more to a leſs beneficial employment' ſeems not to be well founded, *firſt*, from the inconſiſtency already obſerved in the argument adduced to eſtabliſh it, and, *ſecondly*, becauſe, as has juſt been ſhown, nothing more is aimed at, than to put corn, in this reſpect, on a footing of equality with other manufactures, which even the bounty does not do; for it by no means equals the amount of the direct taxes which the land pays, but which, like other manufactures, it is entitled, on the ſame principle, to draw back. The price of any commodity actually in the market, does not depend on the expence it coſts to bring it there, but on the proportion, in the then ſtate of things, between the ſupply and the demand. If, in conſequence of the ſupply being greater than the demand, this price does not repay the expence, with a reaſonable profit, of bringing the commodity to market, the cultivation of the article will no doubt be leſſened till ſome means be fallen on to make it do ſo; and as remedies are generally carried too far, the ſupply, in its turn, becomes unequal to the demand, and, of courſe, the price of the commodity riſes above its proper level. There ſeems to be no cure for this, but to keep the ſupply and demand as near their proper proportion as poſſible; and this, as in the caſe of an individual, can never be done, unleſs there be ſomething to ſpare; the only way to accompliſh which, is to make the manufacturer certain that his goods ſhall not remain on his hands. If, in the nature of things, it is impoſſible to keep the home market in this ſteady ſituation, while it depends entirely upon itſelf, it ſhould ſeem that a foreign market is the only reſource left. It has been ſaid that our population will always ſecure a market at home, becauſe population and food depend on each other: true—but not in the progreſſion which he who made the obſervation has placed it; the

the cart is there put before the horſe: population follows food, not food population: the reverſe is miſery itſelf, and, till the population do overtake the increaſe of food, a market muſt be found for the overplus, or it will ceaſe before it has its effect. To be ſure, in an induſtrious country, it will not be long till the population do overtake it; but ſtill, it does not do ſo immediately; and how is this to be provided for in the interim, but by a foreign market? That the price of corn may, in a conſiderable degree, affect the price of all other manufactures, will not be diſputed; but it may not, perhaps, be ſo clear, that it is altogether ſo omnipotent, in this reſpect, as it is ſtated by the antagoniſts of the bounty to be; and it is certainly much leſs ſo than it was at the time Dr Smith wrote, when corn conſtituted almoſt the ſole maintenance of the labourer, and when manual labour had ſo great a ſhare in the production of every manufacture. Since that time, animal, and various other kinds of food, have been, to a great extent, ſubſtituted for corn; and the improvements in machinery, and materials of all kinds, have made the proportion of manufactures which is executed by the hand of man much ſmaller than it was in the days of Dr Smith. But, even at that period, its effect has ſurely been overrated. If the hold our manufactures have of the foreign markets depended on the price of our corn, and the wages of our labourers, compared with thoſe of other countries, we ſhould not poſſeſs the preeminence we have, for one year. In a market which requires a given quantity of various kinds of food, and where the ſupply cannot be augmented, there is no doubt that a diminution in the quantity of any of them will affect the ſituation of the reſt; but this ſuppoſes a country arrived at its higheſt pitch of production; to which none, that we have heard of, and certainly not Great Britain, has yet attained.

If, indeed, an abſtraction ſhould take place in any of theſe articles of food, in a country cultivated to the utmoſt, the portion of land employed in raiſing other articles muſt neceſſarily be diminiſhed; but if there be ſtill plenty of uncultivated land, is it not the natural conſequence that labour will be applied to make it produce the quantity wanted? If the bounty is ſuppoſed, by diminiſhing the ſupply, by the quantity of which it occaſions the export, to create a deficiency in the market, is it not more natural to ſuppoſe that the preſent land will be better cultivated, or that waſte land will be employed to make good this deficiency, than that land, already employed in the production of another ſpecies of food, almoſt as neceſſary, ſhall be withdrawn from it for that purpoſe? If this be the effect of the bounty, what can follow from it but good, in as far as a more populous and better

cultivated

cultivated country is worthy of that name. That this mode of relief may have an end, there can be no doubt; but we are ſtill a great way from that point; and all the ſplendour and happineſs attendant on an increaſing country lye on the road to it. Upon no other ground, but that of a country being cultivated to the utmoſt, can the notion that a bounty does not occaſion an increaſed production of corn be ſupported. What are premiums and bounties on other commodities given for, but to increaſe the quantity produced? and why ſhould not this, at leaſt *in the firſt inſtance*, have the ſame effect in the production of corn? And if it have this effect in the firſt inſtance, the conſequences which are ſo poſitively ſtated as counteracting it, cannot enſue; for, if a greater quantity of land be brought into the culture of corn, a greater quantity muſt be produced; and the huſbandmen, by the production of this greater quantity, will make a greater profit at a ſmaller price; and, therefore, the prices of corn will not riſe, and the farmer will be in a better ſituation than he was. But the probability is, that the benefit to the country will not ſtop here. In the relative prices of corn in Great Britain, it is hardly to be ſuppoſed that the preſent bounty, at leaſt, is ſufficient to enable our corn to meet that of the other parts of Europe abroad on equal terms. Till the bounty, then, is ſufficient to occaſion actual exportation to a conſiderable extent, it is a dead letter, as far as that is concerned; but it is not ſo in another point of view. The farmer, under the conviction that, to a certain extent, a foreign market is open to him, and that his commodity can never altogether remain on his hands, improves and cultivates with confidence. From the flouriſhing and increaſing circumſtances of his own country, which this very cultivation ſtill farther promotes, he finds that he can diſpoſe of his augmented produce at home, which, in every inſtance he will, for his own intereſt, prefer to any foreign ſale, on equal, or even better terms; and the home market will, unqueſtionably, at all times have the firſt offer. If the bounty, therefore, be the cauſe of the production of an increaſed quantity of corn, it is impoſſible the effects, which its enemies predict, can ever flow from it. The firſt reaſon which has been given, why the bounty cannot occaſion the cultivation of more corn, is, that it muſt raiſe the money price of corn, and that its only effect will be to degrade the value of ſilver. The enemies, and indeed ſome of the friends of the bounty, have talked much of value and price, and of real price, nominal price, and money price; the diſtinctions between which, they mutually accuſe each other of not comprehending. Value and price, though often confounded together, ſeem to admit of a pretty preciſe diſtinction. The different modifications of price, how-

ever, do not ſeem to preſent themſelves ſo readily to the mind. The real price of any thing can only be relative, and ſignify the quantity of any other commodity which it can at a particular time command; for no commodity can invariably be exchanged at all times for the ſame preciſe quantity of another. Money is the ſymbol of this relative price; for, abſtractedly, it can never be called the price of any thing, except in the ſenſe of its marking this relative proportion. Nothing can make this more plain than the experience we have now acquired, that almoſt the whole commodities of the greateſt commercial country in the world may be exchanged by the intervention of money of no intrinſic worth whatever. It would be deſirable to ſee the diſtinction between real, and nominal, and money price, ſtated with more preciſion than to dull conceptions it has hitherto been: no one who has yet attempted it has been able long to preſerve the diſcrimination. Dr Smith and his followers on this point, (for in his general doctrines all men follow him), affect to regard this as very eaſy; but when they talk of the effect of the bounty being the degradation of the value of ſilver, they ſurely do not conſider how ſmall a quantity of ſilver, comparatively ſpeaking, enters into the circulation of Great Britain. But even though ſilver compoſed the whole of the money of the country, its value as a commodity could never be affected farther than to that extent; and one ſhould think that the greater quantity which was abſtracted for the purpoſes of money, in place of degrading, would have the effect of raiſing its price as a commodity; and, accordingly, we ſee that, in ſpite of the riſe in the price of corn, and almoſt every other article, the price of ſilver, as a commodity, has not been degraded. How is this accounted for on the principles of the enemies to the bounty? That a ſuperior fertility of mines, or a defalcation in the demand, may affect the price of ſilver, like every other commodity, may be eaſily ſeen: but how the price of corn is to have this effect on it, more than on any other commodity, does not ſeem to be ſupported either by reaſon or experience; and ſtill leſs does it ſeem to follow, that, in conſequence of the bounty, no more corn would be raiſed, or that the farmer would be no better off than he was before. The obvious effect of the bounty is, in the firſt inſtance, to produce more corn; but if more corn be produced, unleſs the population increaſe with it, (a conſequence, however, moſt devoutly to be wiſhed, and which will follow), the price cannot increaſe, at leaſt at the preſent bounty; and the farmer, by being encouraged to raiſe more corn, will be enabled, at a lower price, to draw more profit to himſelf. It muſt, however, be confeſſed, that the whole is a very difficult ſubject; and it is to be wiſhed that ſome perſon of ſuperior

perior abilities would come forward, and inveſtigate it to the bottom. One thing, however, cannot be denied—that both parties have pled their pretenſions too high; and, in the preſent ſituation of this country, a liberty to import grain at a moderate duty is perhaps of as much conſequence to the proſperity of the landholder, as to that of the manufacturer. The bounty, in the preſent circumſtances of this country, can never have any effect, but the very beneficial one, of an ideal market to the farmer. The proſperity of the landholder, and the increaſing value of his eſtates, depend on the number of inhabitants induſtriouſly employed. If theſe are limited to the increaſe of corn which this country, with every ſuppoſed exertion, can be made to produce, the augmentation of the population muſt go on very ſlowly indeed; whereas if, by importation, the food, and of courſe the numbers, were augmented in proportion to their induſtry, their wealth, and conſequently their want of the more refined articles of luxurious living, which afford by far the higheſt rents for ground, would increaſe in proportion; but theſe muſt, in a great meaſure, be furniſhed from lands at home; and, of courſe, in place of the value of theſe lands being diminiſhed by the importation of corn, they would be increaſed, in a much greater proportion, by the increaſed number of opulent and induſtrious inhabitants, than if no ſuch importation had taken place. This ſeems to be the liberal view of the ſubject in the preſent advanced ſtate to which Great Britain has arrived; and it would be a happy thing, if both parties would lay aſide their prejudices, and meet each other on theſe grounds.

I am, Sir, your moſt obedient ſervant,

July 1805. A——.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Curſory Thoughts on the Corn-Laws, and the Encouragement that ought to be given, ſo as Corn might be Plentiful.

SIR,

ON the ſubject of the corn laws, and the trade in grain, I ſubmit the following obſervations, compreſſed as much as poſſible.

1. To prevent foreign dependence, the culture of grain at home ought to be encouraged, ſo as, if poſſible, to leave a ſurplus in common ſeaſons.

2. There is no phyſical impoſſibility in attaining this object. It *has been* attained, within the limits of a few years back; and if our conſumpt has greatly increaſed, ſo has our ſkill in cultivation. Look at our waſte lands and our unemployed manures—lime, marl, clay, ſhell ſand, ſleech, moſs, water, &c. We have immenſe reſources yet unuſed.

3. The more corn that we rear, the lower muſt the price be.

4. Whatever diſcourages the culture of grain, muſt certainly raiſe the price.

5. It is not the price of a buſhel, or a boll, that can be any ſtandard for aſcertaining the farmer's *profits*. It is *the ſurplus he can ſell*, after deducting ſeed and bread, multiplied into that price, that aſcertains his returns; from which deduct his *charges*, and then the profit appears.

6. It often happens, in bad years, that the farmer has little ſurplus to ſell; but, in good ſeaſons, he has much to bring to market. He therefore gains more money frequently when prices are low.

7. By importing corn too freely, the foreign cultivators have the large prices; while the Britiſh farmer, owing to unpropitious ſeaſons, has at ſuch times little to bring to market, and muſt be content with the low prices of abundant ſeaſons, when he can ſend more. This reduces the culture of grain at home, and increaſes it abroad.

8. Merchants, both at home and in foreign parts, would draw equal profits from the commerce of grain, if we could renew our export trade, inſtead of importing it.

9. As agriculture furniſhes bread to the manufacturer, enlarges his facilities of conveyance, and extends his market at home; and as the manufacturer increaſes the farmer's market, infuſing a ſpirit for improvements, and adding to the means of effecting them, therefore it appears wiſe in the farmer and the manufacturer to afford mutual and cordial ſupport to each other; and particularly, to allow, without murmur, a fair price and a free market for the produce of their reſpective arts.

10. Candid men will find, that the price of grain in common years, when the markets were ſupplied by our own farmers, has riſen leſs than that of labour, of land, manures, implements, and work in trade.

11. If this remark does not apply to bad ſeaſons, it muſt be remembered, that our grain markets are very dependent, in ſuch years, on the merchants, and on foreign cultivators; and this fact ought to teach us, how little theſe people either can or will relieve us, when we want corn at home.

12. Can grain be reared well and abundantly, if, by the conduct of ignorant or intereſted individuals, the firſt of all manufactures be ſuffered to labour under diſcouragement, and to decline more and more?

Let a fair price be given cheerfully; let the Britiſh farmer be always preferred on equal terms, and encouraged to rear abundant ſupplies; let victual ſtores and ſhops be opened in every town and

and village, and free markets allowed, without impoſts of any kind; let mobs and alarms be ſuppreſſed, for they always produce two effects—they raiſe the price, and diſcourage culture; let there be a free paſſage for grain and meal, to every city, town and diſtrict, in the Britiſh empire; and let the farmers be enabled to increaſe their ſupplies, in the aſſurance of being not only permitted, but aſſiſted, in exporting the ſurplus to foreign nations; and if proper meaſures be then adopted as to leaſes, manures, multures, &c. ſo as to remove obſtructions, and to increaſe confidence and encouragement, the culture of grain muſt of neceſſity be extended: and this is the only certain method that can ever be taken to keep the prices moderate, and prevent dearth and famine.

ALPINUS.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On Ploughing Matches.

SIR,

ON the ſubject of ploughing matches, I beg leave to obſerve, that, when conducted with any degree of judgement, they encourage the workmen to aim at becoming more perfect in their buſineſs, and to acquire the habits of ploughing ſtraight, with an equal and proper depth, and with ſteadineſs and expedition. They alſo kindle a degree of emulation to excel each other in this important branch of huſbandry; and the marked attention of the public to it, has good effects in ſtimulating workmen to make better ploughs, and farmers to have better teams. I muſt alſo add, that there is not a diſtrict in Britain where theſe effects would not prove advantageous; and that, in every diſtrict where matches have been inſtituted by the Highland Society, ſo far as I have ever heard, there was abundant need for them.

LEONIDAS.

FOR THE FARMER'S MAGAZINE.

Receipt for making Salve for Curing the Foot-Rot in Sheep.

To make an Engliſh pint of Red Salve;

Take 8 oz. of Bole-Ammoniac,
6 oz. of Fine Honey,
4 oz. of Burnt Alum.

Mix the above ingredients together; pour in as much train oil as will make it of a ſufficient thickneſs. If the foot is come to a humour, pare it as nigh as poſſible, not to make it bleed, and waſh it clean with a little vitriol water; then apply the ſalve; and keep the foot dry, if poſſible, elſe the ſalve will not have its proper effect.

G. W.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIR,

I AGAIN take the liberty of ſending you another *query*, as a ſupplement to my laſt paper. As I feel myſelf very inadequate to the ſubject, I truſt that ſome of your *experimental* correſpondents will give it an *impartial* and *deciſive diſcuſſion*; for the moſt part of our *Enlightened Glendale-Ward Farmers* differ in this point of rural economy.

Query, Which is the beſt and moſt profitable plan, of the three following methods, of feeding cattle with turnips?

1. Fed in a hovel, ſuch a one as that at Eſkmount, (deſcribed in Vol. III. p. 8. of your Magazine), and after the ſame manner?

2. Fed in the ſame manner as above every way, except being chained up to their cribs by the horns, inſtead of being chained by the ſtakes? or,

3. Fed in open courts, with covered ſheds, for ſhelter; having wooden troughs to eat their turnips out of, with tumbling hecks for their ſtraw?

I have ſtated the above query under three heads, as plainly and laconically as poſſible; and, if conſiſtent with the plan of your Magazine, I will offer a few preliminary arguments, generally advanced by the different *feeders* of *cattle*. 1*ſt*, The advocates for the firſt two * methods argue, that oxen will feed more in a given ſpace of time, when confined to their crib, than when left to roam about the fold at pleaſure; for this reaſon (ſay they) when confined to their crib, they are not only enticed, by hearing and ſeeing their partners eat, but are, in a manner, latterly forced to eat; while, when left at liberty, (eſpecially when half fat, as the ſaying is, or when the fat begins to cover the kidneys), they turn nice and delicate in their ſtomach, and will not eat their fill.

2*d*, The advocates for the laſt plan argue, that an ox will not only feed as faſt in their way as the other, but that he will tallow more in a given ſpace of time; that the fat he lays on is firmer; that

* The reaſon of my linking the arguments of the two firſt advocates together is, that the only material difference betwixt them is in the manner of faſtening the ox to the crib; *i. e.* the ſecond advocates ſay, that the ox, when chained by the horns, gets at his turnips better, and with more eaſe, &c. George Culley Eſq. formerly fed his oxen according to the two firſt methods, but has lately (laſt year) altered his plan (at Crookham weſt field) to that of the laſt advocates. Whether this be an experimental change or an experimental trial, time will ſhew.

that he is fed at leſs expence, and will loſe leaſt weight (exſudation) in driving to the market; and that, when at market, the butcher will give more per ſtone for the out-lier, than for the ſtall-fed ox, &c. With theſe and ſuch hortatory-like arguments, they differ from their opponents. But as the forementioned arguments are only *theoretical hearſay*, and not *experimental*, they do not tend to ſolve the queries of your conſtant reader. I am, Sir, yours, &c.

Northumberland, April 6. C— E—t.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Working of Thraſhing Machines.

SIR,

FINDING that my letter, page 50. volume V., on Stopping a Thraſhing Machine drawn from Low Levers, has been honoured with more notice than I expected or intended, I am induced to trouble you again with a few lines in anſwer to your correſpondents *R.r.r.* and *Mr Farey junior*. My ſole motive for writing at all on the ſubject, proceeded from conceiving that I had fallen on an expedient to ſtop a mill drawn from low levers, the inconvenience of ſtopping which, your correſpondent *R.r.r.* ſeemed to complain of. I alſo was in hopes, that the method I had adopted might be of ſervice to all that claſs of farmers who had the misfortune to have thoſe very awkward machines. Being of that claſs myſelf, I found (after laming my horſes, and breaking a lever or two), that it was neceſſary to fall on ſome contrivance to remedy the evil. I firſt tried traces to the lever *in front* of the horſe. The imperfections of that method (as ſtated by Mr *R.r.r.*) very ſoon became obvious. I then had recourſe to light ſhafts, which was rather an improvement, but ſtill a very awkward buſineſs, as it induced the horſe to incline inwards, beſides other diſadvantages. *At laſt*, I raiſed the levers and put *perpendicular* ſhafts to them.—I ſhall here take the liberty of adviſing every perſon about to erect a thraſhing machine, to beware of economy. I ſet out on that plan; and, what with *alterations* and *amendments*, the machine has coſt me as much as a powerful, well conſtructed one would have done at firſt, and, after all, *is not the thing*. As to the clumſy crooked iron at the end of the lever, I was led into the error, by the *aſſertions* of the mill-wright. It is perhaps unneceſſary for me to obſerve here, that I had never turned my attention to thraſhing machines, being but young in the farming line. However, having my doubts on the ſubject, notwithſtanding my mill-wright, I, with the aſſiſtance of a gentleman ſkilled in mathematics and mechanics, brought the matter to the teſt of

experiment, and I subscribe to all that Mr *R. r. r.* advances on the subject. His diagram is as plain as any mathematician could make it; and he will take notice, that in my letter, p. 50, I only hinted that the definition of the horse's draught was not perhaps so easy a matter as stopping the mill. After this declaration, Mr *R. r. r.* will hardly suppose that I will accept of his bet of a rump and dozen; but I should be very glad to give him a beef steak and a bottle of port, should he come my way; and I am almost tempted to put my name, and place of abode, that he might know where to find me; but observing that there is some danger in appearing *in print*, I must for the present decline it. As to Mr Farey, he writes like a man of science, who is perfectly master of his subject. The *words* which he objects to of mine, viz. that the nearer the end of the start can be brought to the machinery, the more purchase the horse will have, are, I acknowledge, very *ill expressed*, or, if he pleases, *nonsense*; for all I meant was, the *longer* the lever, the more the power, which every body knows; but people writing too carelessly will commit inaccuracies. I should be glad to know where Mr Salmon's Instructions for Building in *Pisé*, are to be met with; whether he has published on the subject, or if application must be made to him personally. I am afraid I trespass too much on your time; but, before I conclude, I wish Mr Farey, or some ingenious person, would fall on some contrivance, to be attached to a thrashing mill, or fanners, for *hummelling* barley; for I find as much trouble in beating barley, after it passes a small thrashing machine, as there is in thrashing it from the straw. With my best wishes for the success of your very useful work, I remain, Sir, your constant reader and very humble servant,

July 5th 1805. T—t.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Advantages which follow the Enclosing of Land.

SIR,

In volume V, page 292, it is remarked by a correspondent, that much money has been expended needlessly in enclosing land; and a wish is expressed to know, whether it is the interest of proprietors and occupiers to enclose a district, naturally adapted to the growth of corn, with hedges or stone walls.

Perhaps few subjects have occasioned greater altercation than that of Enclosures; which have been strongly reprobated by some, and keenly recommended by others, from the earliest dawn of improvements in modern agriculture. I have learned that the English Legislature, so long ago as the protectorate of Edward Duke

Duke of Somerset, on account of popular objections, not only put a stop to the enclosing of land, but also ordained all the new enclosures to be thrown open; though it is remarkable that Mr Fitzherbert (a judge of the Common Pleas, who flourished in the reign of Henry the Eighth, and practised the art of agriculture forty years), published in 1534 his sentiments in favour of enclosing. He speaks of land worth sixpence the acre before it was enclosed, that would be worth eightpence afterwards, which, in point of good sense and judgment, does not suffer in comparison with our modern authors, who have written so much on the same subject. But whatever may have been the difference of the opinion of the people in general, or the doubts that may have arisen in the British Senate in those misty times, they were long ago removed; and the numerous acts that have latterly taken place to enclose, sufficiently shew us what is the sense of the Legislature at this time. Therefore, it seems rather strange to me, how any person possessed of experience in agriculture can now entertain any doubt of the propriety of enclosing lands, particularly those of the best quality, which are principally pointed at. A man of little discernment may easily conceive the impropriety of attempting to divide extensive muir or hill land adapted for cattle and sheep pasture, into enclosures of any size; but I am confident that, in many instances, ring fences would be of much benefit to the occupiers, which I shall not enlarge upon at present. In short, my opinion is, that the better the land, and the more adapted to the growth of corn, the greater are the advantages of enclosing; it is of more value, and will reimburse the expences sooner, and with more certainty, than that of inferior quality; and if it was no more but for the conveniency that every farmer will find in resting occasionally part of his land in grass, it is worth while to enclose it.

There are still other advantages that might be mentioned. It may be asked, do not enclosures save occupiers the charge of two or three herdsmen, more or less, according to the extent of the farm? At any rate, from experience I can affirm, that herdsmen are not always to be depended upon; for it too often happens that, through their neglect or inattention, or the wantonness of the cattle themselves, the new sown wheats and young grasses, &c. are most abominably abused where there are no enclosures, or where they are in bad order, the effects of which, in some cases, may be felt for many years; because, in wet weather, and where the soil inclines to clay, it not only does much hurt to the crop for the time being, but sours the land, and makes it unfit to bear such a good crop the following year; if intended for

for pasture grass, it is so much the worse. Besides, in the case of a farm not being enclosed, of the quality alluded to, what must be done with the live stock in summer? Must they be all housed, or put into the farm-yard at night, or left at large during the night-time? or does the querist imagine it possible that a farm of any great extent, particularly at a distance from dung and lime, can, in any point of view, be advantageously managed without pasture grass?

There is another benefit gained from enclosing land adapted to the growth of corn; but, before I proceed farther, it may be remarked, that enclosures, in general, should not contain less than from fifteen to thirty acres each, provided the size of the farm will admit, the reverse of which is too much the case in some places, particularly in Ireland, where the rage for enclosing seems at one time or other to have been considered as the sole improvement necessary; because, without regard to naturally dry or wet soils, many of their enclosures do not contain more than two acres, and some not near so much, which causes a great waste of ground; more particularly, as the fences are generally kept in wretched order. Where it is necessary to intersect farms with open drains or ditches, for the purpose of clearing off rain water, enclosing with hedge and ditch, judiciously done, not only answers the purposes enumerated, but serves to keep the cattle from passing over them, and treading in their sides; however, where the grounds are of a good dry soil, I approve most of stone fences, because they occasion less waste of land, and the crops upon the ridges next them are not injured, as is commonly the case upon those adjoining hedgerows, from the extension of their roots: therefore, although most expensive in the first instance, they are ultimately most beneficial: at any rate, no argument can be advanced sufficient to disprove the utility of both or either of these kinds of fences, particularly when they are properly made upon the soils they are respectively suited to answer, provided they are kept in good repair. Upon the whole, it may be averred, that as hedges can be planted at no great expence, and as the weighty part of materials for building can, in most cases, be got near at hand, both proprietors and occupiers must be benefited by enclosing; though it is unnecessary for me to offer any minute calculations of the probable expences of making such fences, and the time in which such expences will be reimbursed. These things shall be left to persons who entertain doubts upon the subject; though, I believe, it will be a difficult task to prove, that the expence of enclosing equals or comes near to the benefit thereby gained. I am always at your service,

East Lothian, 25th October 1804. T. B.

TO

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIR,

IN England, where the practice of irrigation is carried on extenſively, it often happens, that leſs advantage is derived by thoſe who undertake ſuch an improvement, than circumſtances would have led them to expect. This comparative failure may, in many inſtances, be attributed to want of experience in thoſe concerned, and to the imperfectneſs of the plan adopted for carrying the different operations into execution. There is little doubt but that the worſt land in the kingdom may, by irrigating it properly, be rendered three times more valuable than it is; whilſt, at the ſame time, it is as certain, that if due precaution is not beſtowed, much miſchief may follow. Should the operations be commenced without previouſly uſing the requiſite ſteps in the formation of the meadow, inſtead of making an improvement, the land will be damaged, and a heavy expence incurred.

My preſent deſign, therefore, is to deſcribe and recommend the plan practiſed by the greateſt irrigator in the kingdom, (Mr Charles Stephen), and who, I believe, has had more practice, and laid out more land, in this way, than any other man in Europe.

1. He carefully inſpects the piece of land which is to be irrigated, conſiders what drainage may be neceſſary, and how the ſame may be moſt advantageouſly performed; as, in ſome ſituations, the drains neceſſary for irrigation may be ſo planned, if proper attention is given, as to ſerve for the land alſo; and, in other ſituations, the maſter-feeder, with the additional expence of the thorns, and trouble of planting them, may be rendered a good fence. If due attention is not paid to the article of drainage in the formation of a meadow, little advantage can be expected from the undertaking; for the ground will continue wet and ſpongy, and the graſs, of courſe, be thin and weak.

2. His attention is next directed to the courſe of the river whence the meadow is to be ſupplied, and to the moſt proper places for the erection of floodgates where neceſſary. The gates ſhould be made of the beſt oak, and the whole of the maſon work ſhould conſiſt of hewn ſtone. Floodgates conſtructed in this manner, and properly managed afterwards, will laſt for ages.

3. He now proceeds to take the neceſſary levels, being convinced that he cannot move one ſtep farther with advantage, till he has fixed upon the particular ſpot where each feeder is to be. This being aſcertained, the workmen are directed to commence their

their operations. The maſter-feeder and maſter-drain are firſt caſt; as, when theſe are executed, he ſees better how to conduct the leſſer ones.

4. The breadth of the beds is the next thing that claims his attention, and, in the conſtruction of them, he takes into conſideration the form of the land, and the quality of the water. Where the land is flat, thirty-ſeven feet eight inches is conſidered as a proper breadth. Allowing twenty inches for the feeder, there will remain eighteen feet clear on each ſide of it, lying parallel with the drains; but if the ground is in a convex form, or if the water contains any calcareous ſubſtances, ſuch as lime, marl, and the runnings of a town, the beds may be enlarged even to forty-two feet, which, in general, is reckoned a good medium breadth. It is ſafer, however, to keep within, than to exceed that extent; for allowing, in the firſt caſe, that the part of the bed neareſt to the feeder receives more benefit than that neareſt the drain, (becauſe the farther the water runs the worſe it becomes), yet this is not ſo great an evil as is experienced in the latter caſe, where the water runs too haſtily off, without depoſiting a proper quantity of ſediment. The rate of declivity from the feeder to the drain, found to be moſt advantageous, is one inch in the yard. The bank on the back of the feeder, is formed with the earth which comes out of it, and, if more is neceſſary, recourſe is had to that which is caſt out of the drain.

If the meadow conſiſt of ſeveral pieces, which is often the caſe, one part ſhould be got ready firſt, and the water put on it, whilſt the reſt are preparing.

I was going to point out the method of irrigating, and managing the water during the flooding ſeaſon; but, as I am uncertain about the fate of what I have already written, ſhall go no further at preſent. I am yours, &c.

A Lover of Irrigation.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Selection of Grain for Seed, and the Advantages which would ariſe from having a Farm or Farms ſet apart for the raiſing new Varieties.

Sir,

Few ſubjects, of greater importance to the growers of corn, have been diſcuſſed in your Magazine, than *the ſelection of grain for ſeed;* and it was with much pleaſure I peruſed ſome excellent hints on that buſineſs, in the opening paper of this volume, by a gentleman who ſigns himſelf *Miſo-Mixis*. Indeed, I am ſo fully ſatisfied concerning the extent of the benefit that might be derived,

derived, were none but the pureſt and ſoundeſt grain ſown, that I take the liberty of ſubmitting to your conſideration, a few thoughts on the beſt mode of providing the public with a regular and conſtant ſupply of 'pure and unblended varieties of the different ſorts of grain and roots, adapted to the climate and ſoil of the Britiſh iſles.'

In the majority of corn farms, the operations to be executed are ſo numerous and complicated, as to prevent farmers, in ordinary caſes, from beſtowing that ſedulous attention which the *breeding of grain* requires; and it often happens, that the genius or diſpoſition is imperfectly calculated for carrying forward a ſeries of proceſſes, which require much judgement and diſcrimination at the outſet, and great attention in every ſtage, till a concluſion is reached. Hence it appears, that if we wiſh to ſelect and cultivate new varieties of ſeed, or bring thoſe to perfection with which we are already acquainted, it would be proper that particular farms were devoted, or ſet apart entirely to theſe purpoſes. A breeding farm of this kind, in the hands of a ſkilful and ſteady perſon, is a deſideratum in huſbandry. We ſee the benefits that have been gained by ſelecting and breeding from the moſt approved and beſt formed ſpecies of live ſtock; and, were the like care uſed to ſelect and cultivate the largeſt and beſt ſhaped grain, there is no doubt but a benefit of ſtill greater extent would be obtained by the corn farmer. In my humble opinion, an eſtabliſhment, or eſtabliſhments of this nature, would not only prove of great utility to the public, but alſo be eminently beneficial to thoſe who undertook them. The difference of increaſe, and the intrinſic value of the grain produced from good and bad ſeed, or in caſes where the particular ſpecies has degenerated, is ſo great, that, unqueſtionably, every cultivator, of the leaſt ſenſe or diſcernment, would reſort annually to ſuch breeding ſeminaries, with the ſame avidity as is diſplayed by the breeders of ſheep when they attend the tup-ſhews.

I am well aware that ſeveral farmers, much to their credit, do already beſtow a good deal of attention on the ſelection and culture of the moſt improved varieties of grain, and that much benefit has been derived from their efforts. To one or two active and enterpriſing perſons in Eaſt Lothian, the public are indebted for the beſt variety of thin-chaffed wheat which is to be found, ſo far as my knowledge reaches, in Great Britain; and, from their perſeverance, we may juſtly expect that freſh ſupplies of pure and unblended ſeed will be provided to others, who want either leiſure or capacity to breed for themſelves. It is obvious, however, that ſuch ſelections as I have alluded to, muſt neceſſarily be made on a limited ſcale: at any rate, there

there is a hazard that other avocations may interfere, and prevent them from being completely ſucceſsful. Be this as it may, it is plain, that where the attention is entirely confined to one object, ſucceſs may be more confidently expected, than when divided, in a multifarious manner, or directed to different objects.

It alſo deſerves notice, that the fineſt, and beſt variety of grain will degenerate, and fall off in a few years, unleſs freſh ſelections are conſtantly made of the moſt approved ſtalks, from which, only, a new ſeries ſhould be reared. Had not the potato oat been introduced a few years ago, Scotland ſtood a great chance of being ſoon as badly ſupplied with oats as our ſiſter country, where a ſample of good quality is rarely to be got, except of the Poliſh or barleycorn variety. In point of real value it is demonſtrable, that potato oats, on good ſoil, exceed thoſe ordinarily cultivated, by at leaſt twenty ſhillings per acre; therefore, their introduction may be regarded as of immenſe importance to the country. There is cauſe, however, to apprehend, that the ſuperior excellence of this variety will ſoon be loſt, unleſs freſh ſelections are made; for already a conſiderable inclination to degenerate has been witneſſed. The origin of theſe oats cannot be ſatisfactorily traced, but I have often thought they were derived from the variety called *Early Eſſex*; or at leaſt ſelected from ſome principal ſtalks of that variety.

The importance and utility of devoting particular farms to the breeding of corn, receives additional ſupport from the modern improvements made in the like way and manner upon live ſtock. According to the principles, or rather the practice, of many corn farmers, it is ſufficient to ſow ſeed, without troubling yourſelf whether it is pure and unblended or not, and without caring more than that it is of the ſpecies you want to cultivate. The wiſdom of ſuch people, is equally profound with that of breeders of a different kind, who take their cow to the bull, for no better reaſon, than that he is able to procreate a calf; or put a tup to their ewes, merely becauſe he is of the maſculine gender. No doubt ſuch people may have their calf and their lamb, but they have no reaſon to expect that either of them will be handſome and well-ſhaped. In like manner, the farmer who neglects to ſelect his ſeed-corn, and to chooſe the pureſt and moſt unblended grain, will always reap a crop inferior in value to what might have been obtained had he paid attention to theſe circumſtances.

In ſhort, a careful attention to the ſelection of grain for ſeed, may be conſidered as one of the moſt important duties which appertain to the character of a good huſbandman. Indeed, that the beſt of grain ſhould be reſerved for ſeed, ſeems to have been long

long an eſtabliſhed principle in this country; for when rent was paid in kind, it was either tacitly or expreſsly underſtood, that the tenant had a right of ſelecting ſuch a quantity as was neceſſary for the ſucceeding year's ſeed. Though the weightieſt and ſoundeſt grain was in this way retained, and, abſtractedly conſidered, ſuch muſt always produce the ſtrongeſt plants, yet it is more than probable, that little care was ſhewn to ſelect new varieties, or breed from the largeſt and moſt prolific ſtalks. Theſe practices may, therefore, be conſidered as modern improvements, and as yet in an infantine ſtate, though advancing faſt forward to maturity. That their progreſs would be accelerated, by eſtabliſhing breeding farms, will hardly be diſputed; and theſe hints are thrown out, with a view that the ſubject may be taken up by ſome other of your correſpondents, of more extenſive information, and poſſeſſing greater knowledge of botany, than your obedient humble ſervant,

A FRIEND TO IMPROVEMENTS.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Eſſay upon the too great Extent of Paper Circulation in Great Britain in general, but more particularly in Scotland.

SIR,

ALTHOUGH the following Eſſay may be ſaid not properly to belong to an agricultural ſubject, yet, as it is nearly connected with its principal intereſts, I truſt it will not be conſidered foreign to the deſign of your uſeful publication.

I ſhall therefore, without further preamble, ſtate it as an axiom, univerſally admitted of, that the paper circulation of this kingdom is vaſtly too much extended, conſidering that the public at large have no further ſecurity from individuals, who chooſe to *paſs*, or rather *palm*, their bank-notes upon them, than the popular opinion entertained of their reſpective credits. Here, a queſtion naturally ariſes, How can this evil be properly remedied? Two ways preſent themſelves, to ſuit the object of *ſtamping* a degree of greater ſecurity upon ſuch bank-notes as may be iſſued.

The firſt of theſe modes, indeed, would require the interference of Parliament to paſs a bill, obliging every private banker, iſſuing ſuch notes, to lodge good ſecurities to the extent of two-thirds of his intended circulation, and levying alſo a heavy penalty from any one exceeding ſuch circulation; as alſo, on being convicted of ſuch delinquency, the party offending to be, *ipſo facto*, deprived of the power of iſſuing bank notes thereafter.

A plan ſimilar to this was, I believe, brought forward in Parliament

liament many years ago, by a gentleman of the firſt repute in the mercantile world in London;—unfortunately, however, for the country it fell to the ground.

The ſecond mode (which, indeed, I ſhould much prefer) would be for the legiſlature to allow of no other than the Bank of England notes to be iſſued in circulation in South Britain, with branches thereof to be ſettled in the different large trading cities throughout the kingdom, for the interior circulation and convenience of trade. The ſame plan to be adopted reſpecting Scotland, confining its circulation to the Royal and Old Banks, and Britiſh Linen Company, and branches reſpectively belonging thereto.

Perhaps this limited reſtriction of the circulation of Great Britain *ſolely* to the banks above mentioned, might be deemed a kind of monopoly *legally* veſted in the hands of a few, which, if not conducted upon liberal principles, might be unequal to the full extent of circulation requiſite for the country; yet I ſhould think that the managers and directors of ſuch banks, taſting the ſweets of excluſive profit, would not fail to erect branches in proper ſituations adequate to a full circulation. At all events, I ſhould deem it a wiſe, juſt, and neceſſary ſtep in the legiſlature not to allow any private bank notes to be iſſued, without the parties finding an ample ſecurity for the probable indemnification of the public.

I am fully aware of the hue and cry which would be raiſed againſt the adoption of any of theſe meaſures, as cramping commerce, and repugnant to the intereſts of this free country. I, for my own part, however, hold a different language, and ſhould deem the adoption of ſuch, or ſimilar meaſures, as ſubſtantially tending to ſupport the commerce and public credit of Great Britain.

No doubt the erection and failure of the Douglas and Heron bank muſt be in the recollection of many of your readers. And although it muſt be confeſſed, that the wide extended circulation, and unlimited credit given by the directors of that *ſtrangely conducted* company, did ſome partial ſervice to the commerce and agriculture of the country; yet, although its failure happened above 30 years ago, there ſtill exiſts, at this preſent moment, a certain degree of *undulation*, created by the violent *concuſſion* of this *commercial earthquake*, which ſhook the public credit of Scotland to the very *baſis* of its *foundations*.

It were needleſs to enumerate the inſtances we have of private bankers becoming bankrupts, and afterwards living luxuriouſly with their families, whilſt the creditor is fobbed off with a dividend of 2s. or 3s. in the pound. Here the chicanery of the law intervenes to ſcreen fraud and injuſtice; for the bankrupt, by previouſly

viouſly ſettling any hereditary or acquired property upon truſtees for the proviſion of a wife and family, thus ſecures to himſelf the comforts, perhaps elegances of life, whilſt the poor creditor is left to rot on a *dunghill*.

Surely, if the iron hand of juſtice calls for the life of a needy wretch, who, in an ill fated hour, has *forged* his neighbour's name, though, perhaps, urged thereto by dire neceſſity;—by a moral parity of reaſoning, the torture ſhould be applied to him who *frames* and *conducts* buſineſs in the manner above alluded to, and thus *openly*, *wantonly*, and *inſolently* mocks at the ſufferings of his fellow brethren, and defrauds a generous and unſuſpecting public.

Much of late years, has been talked of a *tree of liberty*; but if ever it ſhould rear its head in this quarter of the world, I confidently truſt that the common ſenſe of the inhabitants would ſoon lay the axe to its *baneful root*. Not ſo, however, ought we to deal with the *tree of public credit*, which ſhould be piouſly foſtered with the ſame religious ardour that the Indian bramin pays to his beloved *banian tree* while repoſing under its venerable ſhade. And ſtill to carry on the metaphor;—as it is well known in natural hiſtory, that the *branches* of this wonderful *tree* droop towards the ground, which (when they unite with) again take root, and ſo form a part of the family of the original trunk; thus the *branches* of the *tree* of *public credit* would ſoon find out the ſoil congenial to their nature, there take root, and ſpread their umbrageous ſhade, to the beauty and advantage of their reſpectable grandſire, and the great benefit of the weary traveller.

And, although we could not boaſt of having the Indian *bramin* to ſolace himſelf under the ſhade, yet (to be allowed a Scotiſh pun) we ſhould thus tranſplant *braw mines* of wealth into the bowels of our country. I am, Sir, your very humble ſervant,

A COUNTRY GENTLEMAN.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Account of the Wood Plantations at New-Abbey in the Stewartry of Kirkcudbright.

SIR,

WHEN I had the pleaſure of waiting on you lately, the improvements of my predeceſſors became the ſubject of converſation. As you expreſſed a deſire to receive a more particular detail of them than was at that time in my power to give, I wrote to my father's wood-foreſter, who was concerned in making theſe improvements; and I now encloſe you his ſtatement, which may be preſented to the readers of the Magazine, in caſe you

think it merits inſertion. And I am, Sir, your moſt obedient ſervant, C. STEWART, *Capt. 21ſt Militia.*

Haddington Barracks, 26th April 1805.

LETTER TO CAPTAIN STEWART.

SIR, *New-Abbey, 9th April* 1805.

MY ſon received your letter, dated the 27th ult., and, as deſired, I now give a circumſtantial detail of the wood plantations on Shambelly-hill, which I aſſiſted in executing.

In the year 1752, your grandfather encloſed four acres, which were planted with oak, aſh, and common fir; and, in 1792, I began to cut the latter from amongſt the hard wood, at which time the trees meaſured from five to twenty feet of timber each. The weeding of that lot was finiſhed in 1800, and produced about 6ol. per acre, beſides a conſiderable number of ſmall trees which were ſold, when very young, at ſuch prices as they would bring. A tolerable crop of oaks is left, though not ſo good as might have been gained, had the firs been wed out ſooner from amongſt them. Thoſe which got air in time are now worth 1l. each.

Five years after forming the firſt plantation, a ſecond was made, conſiſting of two acres of common firs, for which your father refuſed 200l. Sterling per acre, and deſired me to cut and ſell them to the country, according to the demand that appeared; which I am at preſent doing. There are 425 trees on the acre, meaſuring about eleven feet each, which ſell at 15d. per foot, conſequently, the value thereof is 250l. per acre, or thereby.

A third plantation of 26 acres of common firs, with a few oak and aſh trees, was executed in the year 1765; but the firs being too cloſe on the ground choked moſt of the hard timber. The firs are now weeding for the Engliſh market, where, I am convinced, they will produce fully 100l. per acre. This plantation lies on high ground.

In 1772, a fourth plantation of 28 acres was made under the direction of your father, ſome of which with oak and common and larix fir; part with aſh and common fir, and the reſt with beech and fir. For ten years paſt we have been weeding the firs, which contain from four to five feet of timber in each tree, and produce fully 40l. per acre at the Engliſh market. The oaks which remain are worth 50l. per acre. The beech is very thriving; but the aſh was by no means ſo, till cut over about three years ago, which produced an aſtoniſhing change.

During the ſeven ſucceeding years, your father planted above 200 acres with oak, aſh, and common and larix fir. A few of the firs are taken out, which meaſure from three to four feet; and

and you know we have a tolerable good ſale for them at the coal-works on the Engliſh ſide of the water. The whole hill, which contains nearly 300 acres, was conſidered to be worth only 15l. *per annum* before it was planted. I was originally tenant of part of it. The ſoil is moſtly good and dry, though one half of it was covered with large ſtones.

We generally plant from 1500 to 3000 of different ſorts of trees per acre, two thirds of which are common and larix fir; the remainder oak and aſh, with ſome birch and alder where the ground is wet. I raiſed moſt of the plants from ſeed, ſo that your father had few to buy; and it is conſiſtent with my knowledge, that the expence of encloſing the hill, and executing the ſeveral plantations, did not exceed 400l. altogether. I remember of our getting, in 1765, a quantity of acorns from London, at the trifling expence of 40s., which produced above 150,000 plants.

Laſt winter your father encloſed 12 acres of more ground, on which were planted 10,000 oaks, 8000 common, and 7000 larix firs, 400 elms, and 400 birches, and next winter he propoſes to encloſe and plant 12 acres more. There is of natural oak wood upon the eſtate about 20 acres, which I have ſeen cut three different times in the courſe of the laſt 40 years, and which has paid the family about 2000l. Some of the trees contain from 26 to 50 feet of wood; and one tree, to my certain knowledge, yielded a ton of bark. I may alſo mention, that three acres of common firs, planted by your great grandfather, which I cut and ſold in the year 1773, produced, in ſeveral inſtances, not leſs than 40 feet of timber, being then betwixt 50 and 60 years of age.

I have now given the particulars requeſted; and will be extremely happy to communicate ſuch farther information as may be neceſſary, or in my power to give. I am, &c.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Nature, Improvement, and Qualities of the different Soils proper for rearing Sheep.

(Continued from Vol. V. p. 433.)

LETTER III.

SIR,

HAVING, in my two former letters, deſcribed, at conſiderable length, the nature and properties of the principal plants produced on a moiſ ſoil, it remains now only to ſhow at what particular ſeaſon of the year, and by ſheep of what age, they can be moſt advantageouſly depaſtured.

As the conſtitutions of ſheep are formed, in a great meaſure, from the nature of the ſoil on which they are bred, too much

care cannot be taken to provide them with ſound healthy paſture, ſo long as they are in an immature ſtate, particularly during the firſt year, as it is well aſcertained from experience, that hogs reared on a healthy ſoil do not eaſily loſe their inherent good qualities afterwards. Lambs, when intended to be kept as a ſeparate hirſel, may be allowed to lye, for ten or twelve days after weaning, on clean graſſy paſture, to prevent over-fatiguing them in ſearch of food; but, after that time, they ſhould be kept for one or two months, as circumſtances may permit, on ſuch ſorts of herbage as tend moſt to brace the ſyſtem, and purify the blood. Heath, ſtool-bent, and ling, ſeem to poſſeſs theſe qualities in an eminent degree, being of a healthy and hardy nature, uniformly reſiſting the 'firmeſt ſhocks' of the ſevereſt ſeaſons. The temporary decay which ſome of them undergo, proceeds not from any inherent delicacy in the plant, ſubjecting it to the influence of external cauſes, but is perfectly natural to it at a certain period. Deer-hair, for example, remains green only for a few months, and then fades; the periods aſſigned by nature for its growth, maturity, and decay, being tenaciouſly adhered to, without regard to the ſtate of the weather; and it is well known, that before the period of decay arrives, the ſevereſt blaſts have little or no effect upon it. With regard to the healthy qualities of theſe plants, experience bears ample teſtimony. It is an axiom in ſheep-farming, that the cloſer graſs is eaten, the more is the flock expoſed to ſuffer by diſeaſe; and it holds univerſally as to the more ſucculent graſſes. With regard, however, to the plants in queſtion, the rule ſeems to be reverſed; for, in them, the part of the ſtem or ſtalk neareſt the root is the moſt nutritive and healthy; and, on this account, ſpring-burning is practiſed, as, by means of it, not only the old decayed herbage is cleared away, which might hinder a freſh ſpringing, or, if eaten, perhaps injure the powers of digeſtion, but eaſy acceſs is alſo gained to the moſt valuable part of the food.

Seeing that moſs ſoils abound with plants poſſeſſed of ſuch beneficial qualities, it may excite ſurpriſe that lambs are not always kept upon them during ſummer. Where local circumſtances allow, the practice generally prevails; but, in ſome places, it would be attended with pernicious conſequences to the reſt of the flock, by preventing them from lying ſo much at eaſe as they would otherwiſe do; and, in others, it cannot be attempted, from the ſmall extent of ſoil of that deſcription. Lambs bred upon moſſes may not be ſo fleſhy as thoſe reared on more graſſy paſture; but as the blood is pure, and the conſtitution good, diſeaſe is in a great meaſure prevented. It is alleged by ſome, that as moſs graſſes are generally of an aſtringent nature, they, of courſe, conſiderably contract the paſſages through the entrails, and thereby tend

tend to produce ſuch ſtoppages as generally terminate in *the ſickneſs*, when the animal is allowed to fill its belly with more ſuculent food. The obſervation is not altogether groundleſs; but the danger dreaded may be eaſily avoided, by allowing lambs to feed for three or four hours every day on more nutritive paſture, thereby accuſtoming them to every kind of food; as is the practice of the moſt experienced ſheep-breeders. If, after ſuch treatment, bad conſequences enſue, they may be ſuppoſed to proceed from other cauſes than the quality of the food on which the ſheep were bred; and, of theſe, unneceſſary *dogging* may be conſidered as chief. Broken bones are often the conſequence of this abſurd practice; and when this does not happen, the ignorant and imprudent ſhepherd imagines all is well; never conſidering, that, by overheating the animal, an impure tincture is communicated to the blood, and a more active impulſe given to the latent ſeeds of diſeaſe, eſpecially to thoſe of that potent malady, the *ſickneſs*. Lambs, above every other kind of ſheep, are particularly fond of deer-hair; and, during the months of July and Auguſt, will thrive upon it amazingly; but as a conſiderable quantity of more nutritive food is neceſſary to put them in good condition before winter ſets in, they ſhould be gradually habituated to a more graſſy paſture, which will prevent the bad conſequences of a too haſty tranſition, and enable them to bear out the trying ſeverity of a mountainous climate.

On paſtures of the foregoing deſcription, hogs will thrive equally well as lambs. They may be put upon them by the beginning or middle of May, and continued to the middle of Autumn; whereas lambs cannot enter before the middle of July. The copious rains which generally take place in autumn, render ſuch ſoils unhealthy as a fixed or continued paſture, though they may occaſionally be of great uſe to ſheep of all deſcriptions, when the weather admits of acceſs to them. Ewes, when giving ſuck, ſhould indeed, for reaſons already noticed, be left to the choice of their food; but when the lambs are removed, they may alſo with ſafety be kept upon them for ſome time, if circumſtances ſo require.

As the texture of the body depends in a great meaſure upon the nature and quality of the food on which the animal lives, ſurely that kind which is moſt productive of ſtrength and hardineſs muſt be doubly beneficial at the time when it advances faſteſt in growth. Now, as the plants I have been deſcribing poſſeſs this quality in an eminent degree, they muſt be conſidered as particularly advantageous to young ſheep, or thoſe in a growing ſtate; and there is reaſon to think, that the different ſeaſons of the year, during which I have recommended their uſe, will, upon trial, be found the moſt proper. I may perhaps be conſider-

ed as pleading for the antiquated cuſtom of keeping ſheep of different ages by themſelves on the ſame farm, but nothing is farther from my ſentiments. I am a keen advocate for freedom in the domains of inſtinct, as well as in thoſe of reaſon; and ſcruple not to aſſert, that the ſame inſtinctive impulſe which directs the lamb, only a few minutes old, to apply, without heſitation, to the individual part of its parent's body from which only it can derive nouriſhment, will when ripened by experience, continue to guide it in ſearch of ſuch food as nature intended for its ſupport; and which, growing ſpontaneouſly upon the mountains, is as much adapted to its conſtitution, being a native of them, as the fineſt artificial graſſes are to the lamb bred upon them. However favourable circumſtances may ſometimes be to induce a changing from place to place, yet, as ſheep always manifeſt an attachment to their native ſoil, it is impoſſible they can enjoy the ſame eaſe, and lye with equal compoſure on any paſture, as on that to which they were originally habituated. It muſt however be confeſſed, that no general rule can be laid down, that is not liable to exceptions. Local ſituation muſt always be taken into account; but, where there is much high-lying, coarſe ground, it is certainly prudent to depaſture it with hogs and lambs; for, if this is not done, ſuch paſture will in a great meaſure be loſt, as the beſt time of the ſeaſon elapſes before ewes can be in a proper ſtate to be kept upon it.

I am, &c. S. L.

An Act to explain and amend an Act, made in the laſt Seſſion of Parliament, to regulate the Importation and Exportation of Corn, and the Bounties and Duties payable thereon. [10*th July* 1805.]

WHEREAS an act paſſed in the laſt ſeſſion of Parliament, intituled, *An Act to regulate the Importation and Exportation of Corn, and the Bounties and Duties payable thereon:* And whereas it is expedient that ſome of the proviſions of the ſaid act, as to the regulating the importation and exportation by the average taken as in the ſaid act is directed ſhould be repealed, and others thereof amended: May it therefore pleaſe your Majeſty that it may be enacted; and be it enacted by the King's moſt excellent Majeſty, by and with the advice and conſent of the Lords Spiritual and Temporal, and Commons, in this preſent Parliament aſſembled, and by the authority of the ſame, That, from and after the 15th day of Auguſt 1805, ſo much of the ſaid act as requires that the importation and exportation of corn, grain, malt, meal, flour, and biſcuit,

biſcuit, into and from England and Wales, and into and from Scotland, ſhall be regulated, as to England and Wales, by the average prices of the whole of the twelve maritime diſtricts thereof, and as to Scotland, by the average prices of the whole of the four diſtricts in Scotland, ſhall be, and the ſame is hereby repealed; and from the ſaid 15th day of Auguſt 1805, the importation and exportation of corn, grain, malt, meal, flour, and biſcuit, into and from every part of Great Britain, ſhall be regulated by the aggregate average price of the whole of the twelve maritime diſtricts of England and Wales in the ſaid act mentioned; ſuch average price to be aſcertained from ſuch returns, and in ſuch manner, as is directed by an act paſſed in the 31ſt year of the reign of his preſent Majeſty, intituled, *An Act for regulating the Importation and Exportation of Corn, and the Payment of the Duty on Foreign Corn imported, and of the Bounty on Britiſh Corn exported;* and by another act paſſed in the 33d year of the reign of his preſent Majeſty, intituled, *An Act to amend an Act made in the 31ſt Year of the Reign of his preſent Majeſty, intituled,* '*An Act for regulating the Importation and Exportation of Corn, and the Payment of the Duty on Foreign Corn Imported, and of the Bounty on Britiſh Corn Exported,*' for aſcertaining the average prices of corn, grain, meal, and flour.

II. And be it nevertheleſs further enacted, That no corn, grain, malt, or flour, ſhall, after the commencement of this act, be allowed to be exported from any diſtrict of Great Britain, or be loaden on board any ſhip, veſſel, or boat, in order to be exported when the prices of ſuch corn or grain reſpectively, in ſuch diſtrict, aſcertained in manner aforeſaid, ſhall have been in the preceding week at or above the import rates.

III. And whereas it is expedient that the period for which permiſſions by Orders in Council to import corn, meal, or flour, now by law continue in force, ſhould be extended as to all corn, meal, or flour imported under any ſuch permiſſion from Quebec or the other Britiſh colonies and plantations in North America; Be it therefore enacted, That, from and after the paſſing of this act, every permiſſion granted by any Order in Council under the ſaid recited acts of the thirty-firſt and thirty-third years of his Majeſty's reign reſpectively, or either of them, for the importation of any ſort of corn, meal, or flour, from Quebec or the other Britiſh colonies and plantations in North America, ſhall continue in force for ſix months at the leaſt, from the date of the Order in Council made for that purpoſe; any thing in any former act or acts to the contrary notwithſtanding.

FOR THE FARMER'S MAGAZINE.

Statement of Particulars reſpecting Cattle fed on Clover and Tares at Markle, Eaſt Lothian, 1805.

THE ſoiling of horſes on clover and rye-graſs is an eſtabliſhed practice in almoſt every corn diſtrict; and the advantages which accompany that mode of ſupporting the working ſtock, have long been completely aſcertained. In the 5th Volume of this work, page 169, it was recommended to feed cattle in a ſimilar way during the ſummer months; and the benefits which would thereby be gained, namely, an economical uſe of graſs, and an augmentation of dung, were pointed out; but, though the reaſoning was plauſible, it remained to be aſcertained by actual experiment, whether cattle could be fattened in that way for the butcher; and, if they could be fattened, the degree of profit which would thereby be produced.

In Flanders, and ſome parts of America, cattle are uſually kept in the houſe, and fed on cut graſs through the ſummer ſeaſon; but, to the beſt of my knowledge, no regular attempt had hitherto been made in North Britain to fatten cattle in this manner, though milch cows, in ſeveral inſtances, have been either partially or wholly ſupported upon ſuch food. I have been in the habit, for many years, of keeping cows on cut graſs; and arguing, by analogy, that what gave butter, would not fail to produce tallow, the inference which naturally followed was, that the practice might ſafely be extended to horned cattle of every deſcription. Laſt ſummer I made the attempt on a ſcale large enough for a firſt one; and mean, at this time, to detail the particulars.

Having purchaſed, October 1804, at Falkirk tryſt, 48 Aberdeenſhire ſtots, moſtly of a full age, which were wintered in the farm yard, they were divided by a friend, on the 4th of May 1805, into two lots, when one lot was put to graſs, and the other into the farm yard, where they got a taſting of ruta baga in addition to their uſual fare of ſtraw, till my clover field was fit for cutting. Before the diviſion, a few turnips had been given to 30 of the beſt and largeſt cattle in a ſeparate court; but, as that parcel was equally divided previous to the remaining 18 being examined, the reſult is not thereby affected, eſpecially as the turnips and ruta baga are charged againſt the clover-fed cattle in the after ſtatement.

On the 1ſt of June I began to cut clover, which was given to the cattle in troughs and cribs; though, for a week at leaſt, to ſave danger, the quantity given was much leſs than they would have conſumed. After that time, a full ſupply was allowed,

lowed, and the offal or waſte furniſhed maintenance for a large parcel of ſwine of different ages. Till the graſs got hard and withered, the cattle, in general, after the firſt fortnight, throve amazingly well, particularly thoſe who had got a few turnips in March and April. Exceptions there were, even amongſt them; for the ſtrongeſt and boldeſt cattle generally took poſſeſſion of the cribs, and would not reſign them till their appetite was ſatisfied. This evil muſt neceſſarily happen where any conſiderable number are kept together, and can only be avoided by having ſeveral courts or feeding places, and ſelecting the cattle for each, according to ſize and diſpoſition.

About the end of July, when the graſs was fully ripened, I changed food, and gave tares which were ſown in March; and continued this article till the ſecond crop of clover was ready for the ſcythe. On the 28th Auguſt, 10 of the *tops* were ſold, which enabled me to do more juſtice to thoſe who had hitherto been ſecond in hand. On the 24th September, the remainder were diſpoſed of; though, unfortunately, one of them died of a ſurfeit on the preceding day, which reduced the account of profits nearly at the rate of 10 *per cent.*

It ſhould have been mentioned, that the farm yard, or *courtine*, was regularly littered with ſtraw, which occaſioned much dung, and that of excellent quality, to be collected. A plentiful ſupply of water was alſo at hand; and the cattle repoſed, during the heat of the day, in open ſheds around the yard, much more comfortably than they could have done in any field whatever. I mention this circumſtance, becauſe ſeveral dealers ſagaciouſly concluded, that the confined air of the court, and the reflection of ſunſhine from the houſes would keep the cattle ſo warm, as to prevent tallow from being gathered in any quantity. On the contrary, I have reaſon to believe that they were better tallowed than beaſts of their ſize, fed for the like time, generally are. The one which died of a ſurfeit had 4 ſtone 6 lib. Tron, or 94 lib. Avoirdupois of tallow, and the weight of the carcaſe was only 34 ſtone Dutch.

I ſhall now proceed to ſtate the profit and loſs account, as copied from my ledger, which was made up with every poſſible attention to accuracy, and is preſented, merely that the reſult of the experiment may be ſufficiently underſtood.

Cattle fed at Markle on clover and tares, 1805.		*Dr.*
To prime coſt at Falkirk and expences -	L. 227	11 0
To wintering on ſtraw, at 15s. each - -	18	0 0
To proportion of turnips in March and April -	6	0 0
To 1¾ acre of ruta baga, at 5l. per acre -	8	15 0
Total charge when clover feeding commenced	L. 260	6 0

Total charge brought over	L. 260	6	0
Cattle fed at Markle on clover and tares, 1805. *Cr.*			
By 10 ſold Aug. 28. at 17l. 15s.	L. 177	10	0
By 13 ſold Sept. 24. - 14l. 5s. -	185	5	0
By hide and tallow of the beaſt that died - - -	3	18	0
	L. 366	13	0

Deducting charge, 260l. 6s., when the cattle were put to graſs, the net profit was 106l. 7s.; beſides what was obtained from ſwine maintained on the offal.

The clover and tare land, which yielded food for the cattle, extended nearly to eleven acres, viz. eight of clover and three of tares; but the ſurveyor's certificate, given below, will be the beſt evidence on this point. I may add, that ſix acres of the clover were good, and would have produced 300 ſtone of hay per acre; the other two were only middling, and could not be eſtimated as exceeding 200 ſtone. Of the tares, one acre or thereby was good, the remainder indifferent. The ſecond crop of clover, owing to the ſevere drought, was very light.

'*Markle, 2d October* 1805.—Theſe certify, that I have this day meaſured the clover and tare ground belonging to Mr Brown, the produce of which was conſumed by cattle in the yard, betwixt the 1ſt of June and this date, and find the contents of the clover to be eight acres and one hundred part of an acre; and the tares, two acres and ninety-ſix hundred parts of an acre Scotch meaſure. WILLIAM DICKINSON.'

The neat profit, 106l. 7s., may be claſſed as follows:

6 Acres of clover, at	12l.	-	L. 72	0 0
2 Acres do.	8l.	-	16	0 0
1 Acre of tares	-	-	8	7 0
2 Acres do.	5l.	-	10	0 0
			L. 106	7 0

It may be objected, that nothing is ſtated for the trouble of cutting and carting the clover and tares; but I preſume this was much more than compenſated by the great quantity of fine manure accumulated during the proceſs. Had the advice of ſome people been taken, the profit account might have been conſiderably augmented, by taking credit on that head; but it was not my object to ſtate it a halfpenny higher than could be ſufficiently inſtructed. Indeed, whoever reflects upon the difficulty of converting ſtraw into dung on clay ſoils, where turnips cannot be raiſed

raiſed with advantage, muſt allow that a benefit of no ſmall importance is gained from uſing graſs in this manner, independent of the direct profit ariſing from the beſtial.

Had it been practicable to run a compariſon betwixt the lot depaſtured in the field, and the one fed at home, the advantages of the latter mode would have been more ſtrikingly diſplayed; but as the former were mixed with other parcels purchaſed at different periods, it is altogether out of my power to preſent a comparative ſtatement, which would have any pretenſion to correctneſs. Both lots, however, were ſold exactly at the ſame price, and on the ſame day, which affords a ſufficient foundation for two inferences, viz. 1. That cattle will feed equally well on cut meat, if care is taken to furniſh them with a full ſupply in a regular manner, as they will do in the field, when allowed to roam at large: 2. That the ſaving of graſs muſt be conſiderable, though I am unable, from the above circumſtance, to aſcertain the extent thereof with preciſion. However, from the total reſult on the different parcels of cattle, and other ſtock depaſtured, I am inclined to believe that the ſaving per acre will amount to 50 *per cent.*, or, in other words, that a field of clover and rye-graſs will feed one half more beaſts when cut by the ſcythe, than when it is depaſtured. I muſt, however, caution ſuch people as may attempt to feed in the former way, that a very great degree of attention is neceſſary in every ſtep, otherwiſe loſs, inſtead of gain, may eventually follow. The yard in which the cattle are fed ought to be commodiouſly fitted up; a plentiful ſupply of water kept within its bounds; a careful ſervant provided for management; tares ſown in different ſucceſſions, to come in when the graſs arrives at maturity; and freſh proviſion furniſhed regularly, at leaſt five times per day. If I had not been provided with tares, when the clover grew hard and unpalatable, I am almoſt ſure the cattle would have made no further progreſs; but having that article of different ages, the proceſs of feeding went regularly forward. People may object that ſuch a mode of feeding is a troubleſome one; and that the old way of allowing the beſtial to ſeek their own food is much more eaſy and convenient. I grant that a good deal of trouble accompanies home feeding; but am yet to learn the branch of good management, which can be executed with as little trouble as is ſuſtained when the ſyſtem is ſlovenly and improvident. The like objection was urged againſt ſummer-fallow on its firſt introduction; afterwards repeated againſt the drilling of turnips; and, in ſhort, every perfect plan is of conſequence expoſed to it. Perhaps a general adoption of home-feeding would be the greateſt improvement that can be introduced on clay ſoils, which naturally are unfit for the growth of turnips.

All

All ſuch ſoils require a good deal of manure before they can be farmed ſucceſsfully; and where ſituated at a diſtance from a large town, no additional ſupply can be procured. To uſe reſources within their bounds ſeems therefore to be found wiſdom, even laying aſide all conſideration of profit in the firſt inſtance. If the clover break, where a ſix-courſe ſhift is followed, was regularly cut with the ſcythe and conſumed at home, I venture to ſay that every farmer would manure one ſixth more ground annually, than what he is at preſent capable of doing.

One obſervation occurs, with which this paper ſhall be concluded. Cattle, intended for home-feeding, ſhould be in decent condition when graſs is firſt given them; for, if otherwiſe, the beſt part of the ſeaſon, namely, the month of June, when graſs is richeſt, is over before much alteration can be diſcovered. It would alſo be a deſireable circumſtance to have the main part ready for the butcher by the time that the firſt crop of graſs becomes hard and unpalatable; for though tares are an excellent ſuccedaneum, yet, conſidering the difference of produce on a given ſpot, they are more expenſive food; and the ſecond crop of clover contains much leſs feeding matter, even from the ſame bulk, than is yielded from the firſt one.

I have to requeſt the reader's excuſe for the numberleſs egotiſms in this paper; but, writing on ſuch a ſubject, it was altogether impracticable to avoid a defect of that kind.

ROBERT BROWN.

Markle, near Preſtonkirk,
Eaſt-Lothian, Oct. 16. 1805.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

A Salutary Invention for Blaſting Rocks with Gun-Powder.

SIR,

I BEG leave, through the channel of your extenſively circulating work, to diffuſe the knowledge of a moſt ſalutary invention, in regard to the blaſting of rocks by gun-powder, which may happily prove the means of ſaving many a limb or life. It is ſhortly this—

Inſtead of wadding the ſhot of powder, depoſited in the jumper-hole in the rock, in the ordinary way, juſt put in the ſtraw filled with powder, which is to communicate with the ſhot, immediately after putting in the charge, and then fill up the hole, by pouring in dry ſand around the ſtraw. It is conceived, that the finer the ſand, as alſo the heavier, ſo much the better; as it will lye in a more compact body, with fewer interſtices to allow

low the *gas* of the ignited powder of the ſhot to eſcape: it may alſo be proper to let the ſand heap up a little above the mouth of the jumper-hole, to increaſe its weight and reſiſtance.

As this wadding of ſand needs no ramming, the impoſſibility of accident, from a premature exploſion of the ſhot, (which, in the ordinary mode of wadding, unfortunately ſo often occurs from the eliſion of fire ſparks in ramming the wadding home), is abundantly obvious.

As the pouring in of the ſand wadding around the ſtraw, above the ſhot, is done in a moment, all the time formerly conſumed in ramming home the wadding is ſaved, which, I am informed, amounted at leaſt to a quarter of an hour for every ſhot. Beſides, all riſk of bungling the wadding proceſs is avoided, which ſometimes occaſioned as much time to be ſpent in removing the wadding, as it had originally coſt to form the jumper-hole in the rock.

How the mere weight of the ſand, lying above the charge of powder in the bottom of the jumper-hole, ſhould operate a reſiſtance, equal to that of a hard-rammed wadding of the uſual faſhion, I leave others to determine. I acknowledge that, when the ſtatement was made to me upon the 5th current, at Lamancha in this pariſh, by the Honourable Mr Cochrane Johnſton, it appeared to me ſo devoid of probability, that I was inclined to remain incredulous, even although, in corroboration, he aſſured me that this invention (happily hit upon of late by a military officer) was now adopted and ſucceſsfully practiſed in the various operations upon the rock of the fortreſs of Gibraltar, to the very great ſaving both of time and expence, as well as the avoidance of accidents to the workmen. That ſame day, however, I witneſſed the effect of two ſhots with ſand wadding in the lime quarry of Lamancha, which the quarryman, though equally incredulous as myſelf, had been induced to try, and which he declared to have had an equally powerful effect in ſplintering the rock, as any of the moſt ſucceſsful ſhots he had ever witneſſed with a rammed wadding. Indeed, from the ſucceſs, I am confident that the old mode of wadding will never again be reſorted to in Lamancha lime-quarry. The ſand uſed was from an adjoining rivulet; fine enough for mortar, but rather too coarſe for an hour-glaſs.

The fact, of the perfect effect of ſand wadding, appears to me ſo well eſtabliſhed, and of ſuch importance, that I loſe no time in communicating it.

I beg you would impart this to the conductors of any work of rock-blaſting in your neighbourhood, that you may be able to report their experience when you publiſh it. And I hope no abſurd ſturdineſs of incredulity will prevent even the moſt muliſh from

from fairly trying an experiment, which may be made at the expence of one halfpenny's worth of gun-powder.

I am uncertain if, in blaſting rock, in the working of different minerals, it does not ſometimes occur, that the jumper-hole, in which the ſhot is to be lodged, has to be formed in a horizontal direction. If this ſhould be the caſe, perhaps difficulty may be found in introducing the ſand above the ſhot; or perhaps, lying horizontally, the ſand might give leſs reſiſtance, than when incumbent with its whole weight upon the gun-powder in a perpendicular hole.

It is ſaid, (but perhaps in the ordinary way of exaggerating what is new), that a leſs charge of gun-powder ſuffices with the ſand wadding. I am yours ſincerely,

Manſe of Newlands, 7th Oct. 1805. CHA. FINDLATER.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On Threaving; or a New Mode of Paying for Reaping Corn, according to the extent of Work executed.

SIR,

TILL ſome abler correſpondent of yours ſhall treat the ſubject of threaving, or reaping our crops of corn, by paying the reapers by the threave, I venture to claim a page of your uſeful work, to broach at leaſt a matter, in my poor opinion, of vaſt importance to us farmers. I ſhall ſuppoſe my reader a ſtudent in farming, and begin by defining terms.

A threave of wheat with us in Forfarſhire conſiſts of two *ſtooks*, and each ſtook of wheat conſiſts of twelve ſheaves upright, and two, called hood-ſheaves. For cutting and binding the threave of wheat ſivepence has been generally paid.

A threave of oats or barley conſiſts of two ſtooks, each compoſed of twelve ſheaves in all, for which threepence halfpenny, and even fourpence has been paid, cutting and binding. The reapers are alſo expected to ſet up the ſtooks. A ſheaf is thirty inches round. Its dimenſions is aſcertained expeditiouſly by a very ſimple contrivance. To a ſtaff of $2\frac{1}{2}$ feet long, a croſs piece of iron is fixed, from which other two pieces of iron, one at each end, deſcend like the prongs of a fork. The prongs are about twelve inches long, and the ſpace between them exactly ten inches. This ſpace the ſheaf ought to fill. The operation of meaſuring is by this means performed at leaſt ten times faſter than if a ſtring were uſed, and is found to be a great relief to the overſeer.

Formerly our corn was reapt, either by day's wages, if near towns, or by reapers hired for the harveſt. Both thoſe deſcriptions

tions of reapers were fed at breakfaſt, dinner, and ſu the addition of a draught of beer between each meal.

The advantages of threaving are numerous.

1. The labourer is paid according as he works; tl idle, it is at his own coſt.

2. Farmers generally hired a certain number of the ſeaſon; and none were hired but full grown pe had leiſure from their other avocations, to engage fo harveſt; but thoſe may act as threavers, who can ſpa two, or even a few hours of the day. The aſſiſtance juſt able to wield a hook, is alſo obtained; and th ing early initiated, become more dexterous reaper who begin at a later time of life.

3. It muſt be obvious a much greater maſs of lab ployed in reaping than before; and the labourers ha work, unknown before in harveſt work, namely, the ing proportioned to the work.

4. Reapers are not kept idle, as formerly, when h ſeaſon; for, when one man's corn is not ripe, the another.

5. There is now little difficulty in aſſembling threa to cut down the largeſt fields in one day. What a be and catching ſeaſons! And, in regard to expence, I from the experience of this preſent year and the laſt. is to the full as cheap a way of cutting down corn, reapt either by day's wages, or by reapers hired by The beſt threaver may earn 2s. 6d. per day, ſome ev women, though inferiorly paid as hired reapers, oft threaving, as much as the men.

6. Inſtead of a maiden feaſt, always a ſcene of riot times of debauchery, a little treat to our own yearl vants and labourers is ſubſtituted in its room, whe yard gate is ſhut, and the potatoes taken up and hou

7. Moſt good things have their mixture of evil. neral rule threaving ſeems an exception. The evil apprehended is that of making the ſheaves too ſmal ſmallneſs of the ſize of the ſheaves is greatly com their being the ſooner in a condition to be carried ho

To conclude, I cannot ſay how threaving may a where; but for Scotland, where winter treads hard c of autumn, and ſometimes outruns it, I conſider thre a moſt excellent practice, and, as ſuch, I recommen brother farmers. I am, Sir, yours,

BRANCH II.

Review of Agricultural Publications.

Minutes in Agriculture and Planting. By William Amos of Brothertoft, near Boſton, Lincolnſhire; illuſtrated with Specimens of eight ſorts of the beſt, and two ſorts of the worſt Natural Graſſes; and with accurate Drawings and Deſcriptions of ſeveral practical Machines, on ſeven Copperplates; whereby every Farmer will be made perfectly acquainted with the beſt Natural and Artificial Graſſes; and not only be made acquainted with the uſe of, but alſo be enabled to conſtruct, the above Machines. 4to. pp. 92. Lackington Allen & Co. London.

This ſplendid and high-priced work, conſiſts of a botanical and chemical diſſertation on the ſtructure and component parts of vegetables, meant, we ſuppoſe, as an introduction, and to ſhow farmers the author's capacity to teach them a moſt important leſſon. This leſſon is

—'on the culture and uſe of nine of the beſt artificial, and eight of the beſt natural graſſes; ſhewing the great advantages that would ariſe from a more general uſe of them, by enabling the grazier to keep one-fourth more ſtock, and the farmer to produce one-fourth more corn upon the ſame land, than they did before.'

In the preface, the author tells us, that

—'the numerous applications made by a variety of graziers for my opinion concerning the beſt artificial and natural graſs ſeeds, for laying down land to paſture, &c. induced me to undertake the part of the work which relates to graſſes.'

For the uſe, then, of us farmers and graziers, the author begins his firſt diſſertation in the true ſtyle of Des Cartes, by teaching us to unlearn all we had ever learnt; and to learn from him, in the firſt place, what a vegetable is.

'A vegetable,' he ſays, 'is an organized ſubſtance, reproducible only by a peculiar ſort of generation;—augmentable in bulk, not ſimply by accretion, or by chemical combination, but by an enlargement of its organization, in which a peculiar vitality cooperates with chemical, mechanical, and electrical influences, to produce the growth and ſalutary ſtate of the body; and which, after riſing into exiſtence, and paſſing through a certain ſeries of changes, is naturally deprived of its vitality, and diſſolved into its component material elements.'

Let farmers alſo learn to know common clover by the following accurate deſcription of it, given p. 3.

'Trefoil with denſe ſpikes, aſcending ſtems, unequal corols, four equal calycine teeth, and awned [illegible]. Root branchy, ſtems aſcending, a foot or more in heigh[illegible] what branching, ſubvilloſe on the upper part. Leaflets ellip[illegible] very entire, [illegible]. Upper

Upper leaves often oppoſite. Stipules widely ovate, connate, ſhortly awned, pale, nerved with purple veins branching towards the margin, and anaſtomoſing. Spikes terminal, ſeſſile, ſolitary, ovate, obtuſe, denſe, many-flowered, ſweet-ſmelling. Calyx hairy, ten-nerved, with ſubulate teeth, of which the lowermoſt is twice the length of the reſt, which are equal. Corol purple, one-petaled, with the ſtandard longer than the wings.'

Theſe botanical deſcriptions, by which, in the opinion of Mr Amos, 'every farmer will be made perfectly acquainted with the beſt natural and artificial graſſes,' and moreover be enabled 'to experiment for himſelf,' ſeem to have been copied from ſome of the many Anglo-Latin tranſlations of Linnæus's *Syſtema Naturæ*; and the chapter on the Structure of Vegetables, compiled from Lee, or ſome other elementary writer on botany; for the author has ſhewn, by unequivocal teſts, his want of ſkill in that ſcience. He has, for inſtance, inſtead of the ſheep's feſcue, a graſs that he recommends to farmers, a very minute plant, ſeldom riſing higher than ſix or eight inches, exhibited, in his work, ſpecimens of the Feſtuca duriuſcula!

Some of the obſervations may alſo be traced to Grew, Malpighi, and Du Hamel, and the works of Linnæus and his pupils, particularly the *Amœnitates Academicæ*, and to the Encyclopædias, and other books which have copied from theſe ſources. We muſt add, there are few of the remarks that we have not ſeen before.

Mr Amos ſeems to ſport a little, when he treats of the loves and paramours of female flowers; and indulges the public with a peep into a lady's bed-room in a new ſtyle.

'In *Parnaſſia*, the males alternately approach and recede from the female, the coition laſting ſome days; and, in the moſt beautiful flowers, of *Cactus grandiflorus*, and of *Ciſtus ladaniferus*, where the males are very numerous, ſome of them are perpetually bent into contact with the female; and as they recede, others advance. In other flowers, the females bend into contact with the males; as in *nigella*, *epilobium*, *ſpartium*, *collinſonia*. In *nigella* (devil in the buſh), the females are very tall compared to the males; and, bending down over them in a circle, give the flower ſome reſemblance to a regal crown. The female of the *epilobium anguſtifolium* (willow herb), bends down amongſt the males for ſeveral days, and becomes upright again when impregnated: and, in the *collinſonia*, the two males widely diverging from each other, the female bends herſelf into contact, firſt with one of them, and after a day or two leaves this, and applies herſelf to the other, the anther of which was not mature ſo ſoon as the former. By what means are the anthers in many flowers, and ſtigmas in other flowers, directed to find their paramours? Is this curious kind of *ſtorg* produced by mechanic attraction, or by the ſenſation of love?'—He adds, 'In ſhort, the formation of the organs for ſexual genera-

tion in vegetables, ſeems to be the *chef-d'œuvre*, the maſterpiece of nature! Farewell then, to equivocal generation!' and

Sing—*Omnia vincit amor!* &c.

He proceeds (p. 10.) to define in what the peculiar energy of vegetable life conſiſts.

'The peculiar energy of *vegetable life* conſiſts in its converting into peculiar compounds, diſtributing in a peculiar mechanical arrangement, and employing, for the general enlargement and ſupport of its organic ſtructure, whatever ſuitable matters are preſented to its proper exterior organs.'

This definition, as well as that of a vegetable, already quoted, it muſt be obvious to the meaneſt capacity, defines nothing, and affords not one ſingle new, nor even any correct, idea, on the ſubject. To be completely ſenſible of this, let the word *vegetable*, printed in capitals in the original, be deleted, and the word *animal* put in its ſtead, and the definition will apply without diſtinction, and without altering one other word, to animals as well as vegetables.

Further, 'After vegetable life or irritability has thus commenced, its firſt energy is exerted in receiving from the earth, in which the embryon is imbedded, the *impulſe of water*, impregnated with various ſoluble or ſuſpendible ſubſtances, which its exterior organs refine to gas as they convert it into nouriſhment.'

Here we would be glad to be informed what the *impulſe of water is*; for we have been in uſe, heretofore, to conſider impulſe as meaning a power, and not as a ſubſtance.

The author's theory as to the food of plants is, that they derive their nouriſhment from water impregnated with various ſoluble or ſuſpendible ſubſtances, refined into gas or air.

The experiment of Euler will however be recollected, which aſcertained that ſome plants may be nouriſhed by pure diſtilled water; and againſt the doctrine, which is no new one, that air is the food of plants, many ſtrong objections lye. If, for inſtance, the flower ſtalk of a lily that has been allowed to droop, and even to become entirely flaccid, is put into water, it will abſorb the water, and ſoon become firm and erect, though certainly not filled with gas.

The author, however, does not ſtop his theories with telling us what is the food of plants. He enters much deeper into the ſecrets of nature, and condeſcends upon the particular gaſes which are the food of plants, and even mentions thoſe that are moſt eaſily digeſted.

'Water undecompoſed, hydrogen, carbon, azote, oxygen, are the only ſorts of food which plants can take in. It is in general ſalutary for plants to receive their nouriſhment rather in a gaſeous, than an aqueous form.'

It occurs from this ſpecimen, that the author would make an excellent

excellent quack doctor; for this is completely in the character of the once famous Dr Graham.

He goes on to detail the elements of the chemiſtry of vegetables pretty correctly in general, as may be ſeen from comparing it with any elementary book in that ſcience, embracing acids and alkalis, gums and mucilages, &c. &c. which ſurely have very little connexion with graſs ſeeds; but for this digreſſion he makes a ſort of apology in the preface, in the following terms:

'Perhaps a great part of this work, ſo far as relates to graſſes, will be new to many among my readers. But as agriculture cannot be practiſed with any tolerable ſkill and advantage without ſome knowledge of botany, I have therefore thought it neceſſary to give ſuch a condenſed account of the ſtructure, propagation, diſſemination, and *component parts* of vegetables, as coincided with the plan of this work.'

How far it is juſtifiable, in a work drawing the attention of practical farmers from its title, to fill up the third part of it with ſuch diſquiſitions, may be much doubted; but we ſhall paſs it over, to conſider the principal part of the work, viz. artificial and natural graſſes.

Under this head, the author treats of, and recommends, nine artificial, and eight natural graſſes. He begins with artificial graſſes. We, however, do not mean to give farmers the whole ſecret, as we ſhall reſerve *in petto* the long botanical deſcription attached to each graſs. Indeed, ſuch deſcriptions are only of uſe to thoſe that are well acquainted with botany; and even Mr Amos himſelf has not been able to apply them to the plants he means to deſcribe, with the neceſſary accuracy of an author. It is certainly much to be lamented, that the names of the common graſſes are not known by a dialect familiar to every one, as nothing whatever appears ſo much to retard perfection in their culture, as the want of common names in treating of them.

'I. *Medicago Sativa*, Purple Lucern, or Medick.

'Perennial. This plant is the moſt productive, and comes into uſe ſooner than any other of the artificial graſſes. Horſes, beaſts, ſheep, and pigs, are very fond of it when it is mown and given them green, which is the moſt uſeful application of it. It thrives beſt on rich, dry, loamy ſoils, which ſhould be made deep, fine, and clean of weeds, by culture. About the middle of April, ten pounds of ſeed ſhould be drilled on an acre, in rows of eighteen inches aſunder, and one inch deep, with a row of common red clover between each, then buſh-harrowed and rolled. Nothing more is neceſſary to be done till weeds appear, when it ſhould be hand-hoed well, and the weeds in the rows pulled out by the hand. As ſoon as more weeds appear, it muſt be hand-hoed and hand-weeded a ſecond time, and even a third time, if neceſſary. When this is done, great care ſhould be taken not to tread upon the ſtanding lucern. As ſoon as it begins to bloſſom, it ſhould be mown, cut off, and given to the ſtock green. By this mode of application,

it will keep more ſtock than any of the other graſſes. It requires three years in coming to perfection; hence the propriety of ſowing common red clover along with it. After that time, it may be mown three, four, or five times in a ſeaſon. Between every mowing it ſhould be well hand-hoed, and made quite clean of weeds. Every third year it ſhould have a covering of rotten dung, after the rate of eight or ten tons to the acre, about Martinmas.'

On this plant, it may be remarked, that it requires a much lighter ſoil than red clover, and will even live on ſuch dry ſandy ſoil as is fit for ſcarce any other vegetable production. In drills, it may be eaſily kept clean by the horſe-hoe; but, as a common article of fodder for farmers, it will ſcarcely anſwer the expence and trouble. Dr Martyn ſays, 'Of many thouſand acres ſeen in France, Switzerland, and Italy, we never obſerved one in drills. When ſown in broadcaſt, it will laſt about eight years, or perhaps longer, if the land be laid down clean.' It is ſometimes planted by the dibble the ſecond year. If ſown with barley, care muſt be taken not to ſmother it. Its earlineſs is one of its greateſt recommendations; and, from all accounts, it is a moſt valuable green crop for farmers.

'II. *Hedyſarum Onobrychis*, Cockſhead or Sainfoin.

'Perennial. This plant produces the beſt crops upon dry, light, rich land; but it will thrive upon the thinneſt limeſtone, gravelly and chalky ſoils, with great luxuriance; even where theſe are ſo poor as to afford a very ſcanty crop of any of the other ſorts of graſſes. It thrives beſt when ſown alone, though it is frequently ſown with barley and oats. But upon whatever ſoil it is ſown, the land ſhould be brought into a very fine and clean tilth by culture. About the latter end of March, or beginning of April, the land ſhould be ploughed; if it is roughiſh, it ſhould be harrowed once in a place, then upon every acre ſow ſixteen pecks of ſainfoin ſeed; harrow the land well, and then ſow eight pounds of common red clover or trefoil upon every acre; afterwards, the land ſhould be buſh-harrowed and rolled. If weeds appear among the ſainfoin, they muſt be deſtroyed as they come up, by hand. No ſtock ſhould be ſuffered to graze upon the ſeeds the firſt year; and if it were top-dreſſed with one quarter of rape or bone duſt to an acre, about old Michaelmas, the plants would be greatly invigorated. Upon ſuch land as the above, it furniſhes a crop of hay in ſummer, of greater conſideration than any other of the artificial graſſes. The hay is excellent for all kinds of ſtock, and the aftermath very good for cattle in autumn, and for ſheep in winter, till Candlemas. Hence, ſainfoin is a moſt invaluable graſs on limeſtone, gravelly and chalky ſoils. Sainfoin requires three years in coming to perfection: hence the propriety of ſowing common red clover or trefoil along with it. This graſs ſhould be mown before it is in full bloſſom.

'III. *Sanguiſorba Officinalis*, Common Burnet.

'Perennial. This plant, though little cultivated, is highly valuable, either green, or in hay, for horſes and cattle, and is an excellent winter food

food for ſheep. It delights moſt in a dry, clean, light, and deep ſoil; but it will grow very well on poor gravelly and chalky ſoils, which muſt be made clean and fine by culture.'

We here remark, that Mr Amos has confounded two different plants. His botanical deſcription applies to a hard woody plant, which grows in moiſt meadows, called the Great burnet, by ſome; whereas the Cultivated burnet (Poterium ſanguiſorba) thrives chiefly in a calcareous ſoil. It is recommended by Dr Withering, as valuable in ſheep paſtures of a calcareous ſoil only; for that author remarks, that the Poterium ſanguiſorba, or Common burnet, 'not anſwering the farmer's expectations, is now in a great degree laid aſide. Cattle are ſaid not to be fond of it; nor is its produce ſufficient to anſwer the expence attending its culture.'

In like manner, Dr Martyn, when treating of the Poterium, obſerves—'Some years ſince, Mr Rocque attempted to introduce it as food for cattle. It has only one good quality, which is, that it continues green all winter; but cattle are not very fond of it, nor does it yield a ſufficient burden to pay the farmer for the expence of cultivating it.' Burnet is alſo diſapproved of, as unproductive, by Dr Anderſon.

'IV. 1. *Trifolium Pratenſe*, Meadow Trefoil, or Common Red Clover.

'Perennial.—This is a moſt invaluable plant, whether it be mown and uſed green, depaſtured, or made into hay. But notwithſtanding its being a perennial, yet it only holds its vigour two or three years. By its long tap root it reſiſts the effect of exceſſive drought on the dryeſt ſoils, and increaſes the quantity of vegetable mould in all. It will grow on moſt ſoils, but not equally productive; and whether it be mown and uſed green in the ſtall, depaſtured, or made into hay, it generally produces four or five times the quantity of fodder that the ſame land would have done with common graſſes! In good rotations, it frequently makes the ſecond crop in lieu of white corn; mown once, and the after graſs eaten off with horſes, beaſts or ſheep, and the land ſown with wheat. In that caſe, two pecks of beſt rye graſs, mixed with fourteen pounds of this clover ſeed, ſhould be ſown upon an acre, which not only increaſes the quantity, but alſo greatly improves the quality of the hay. If the clover is for ſtall feeding, the rye graſs ſhould be omitted. On poor light ſoils the better way is to take two or three crops of corn, and then to lay the land down to reſt, three, four, five, or ſix years. In this caſe, I would adviſe the farmer to ſow the following ſeeds on an acre.

Burnet, - - -	4 Pds.	Rye Graſs, - -	2 Pks.
Cow Red Clover, -	4 Do.	Vernal Graſs, -	½ Do.
White Clover, -	8 Do.	Sheep's Feſcue Graſs, -	¼ Do.
Trefoil, - - -	4 Do.	Creſted Dogs-Tail Graſs,	¼ Do.

'By this management the ſoil would acquire a vaſt increaſe of vegetable mould; and, by the paſture maintaining one fourth more ſtock than it did before, it would be greatly charged in manure, by which means the

lands would be kept in perpetual good condition; and, when brought under tillage, it would produce one fourth more corn than it did before.'

'IV. 2. *Trifolium Medium*, Middle Trefoil, or Cow Red Clover.

'Perennial.—Differs from the former in having a more branchy flexuose ſtem, longer linear ſtipules, the two upper calycine teeth ſhorter, and laxer ſpike. Leaflets elliptic, ſubglaucous beneath, and hairy on the margins. This clover grows naturally in high chalky fields, and in gravelly fields, with clay beneath.'

The Trifolium medium is ſaid to remain longer in the ſoil than the Common red clover; but we have the authority of the Flora Ruſtica for ſaying, that it is a miſtake to confound it with the Cow red clover, which is a different plant.

'V. 1. *Trifolium Repens*, Creeping Trefoil, or White Clover.'

Perennial.—All that is ſaid by the author on the ſubject of White clover, is as follows.

'This is the ſweeteſt graſs for all ſorts of ſtock yet known, and makes the cloſeſt ſward, and is very productive of foliage. Hence it is moſt peculiarly adapted to laying down land to paſture. It flouriſhes moſt upon rich, dry, warm ſoils; yet it will accommodate itſelf to moſt kinds. It is ſeldom ſown alone, unleſs it be to raiſe the ſeed; nor ſhould it be ever mown for hay. In laying down rich ſoils, which are intended to remain in paſture for many years, this ſeed ſhould predominate.'

'V. 2. *Triſolium Procumbens*, Procumbent or Hop Trefoil.

'This plant is not very productive, and thrives beſt upon dryiſh gravelly ſoils and paſtures.'

'VI. 1. *Vicia Sativa*, Common Purple Flowered Summer Vetch, or Tare.

'Annual.—The great objects of this Tare are, 1ſt, Summer herbage, either depaſtured, or mown green, as ſoiling for horſes, &c.; 2d, Hay as a ſubſtitute for Red clover (on land that has tired of growing it); 3d, Manure, to be buried in by the plough; and, 4th, Seed.'

We remark, that there are ſeveral varieties of this excellent Tare.

'VI. 2. *Vicia Lathyroides*, Purple Flowered Wild Vetch, or Winter Tare.

'Annual.—It is diſtinguiſhed from the former by its ſmooth legumes, and rough tuberculated ſeeds, not to mention that the tendrils are never branched, nor the leaflets more than ſix in number. The moſt proper ſoil for both kinds of tares is a barren ſandy ſoil; next to it are gravelly, chalky, and limeſtone ſoils; but they will thrive in moſt kinds, except ſtrong moiſt clayey, or cold moory ſoils.

'The great objects in cultivating this Tare are, 1ſt, Spring food and Summer herbage for cattle and ſheep, eſpecially ewes and lambs; 2d, Hay as a ſubſtitute for Red clover; 3d, Manure to be buried in by the plough; and, 4th, Seed.'

We remark, the Vicia lathyroides grows about three or four inches long, and ſo will, no doubt, afford an excellent crop of

'V.

The

The author next proceeds to what he calls Natural graſſes; all of which are perennial. The firſt that he takes notice of, is,

'*Anthoxanthum Odoratum*, Sweet-Scented Vernal Graſs.

'Though this graſs is not ſo productive as ſome, yet it is valuable as an early graſs, and for its readineſs to grow in all kinds of ſoils and ſituations. Cattle and ſheep appear to be very fond of it.'

Dr Withering ſays, that this graſs is not palatable to cattle. We may add, that it is a ſmall and ſhort-lived plant, running too quickly into flower ſtalks, that have little or no foliage.

'*Alopecurus Pratenſis*, Meadow Fox-Tail Graſs.

'This is an early graſs, and very productive. It grows in fields and meadows everywhere, eſpecially ſuch as are rather moiſt; and it is an agreeable graſs to cattle.'

Curtis, Stillingfleet, and all writers on the ſubject, agree in commending this graſs.

'*Poa Pratenſis*, Smooth-Stalked Meadow Graſs.

'The foliage of this moſt noble graſs is early, very abundant, and abiding; and it rather affects a dry, than a moiſt ſituation. This is a very ſweet graſs; and, when cloſe fed down, is very acceptable to ſheep, cattle, and horſes.'

This graſs labours under one very great diſadvantage. From the nature of its roots, it is almoſt as difficult to be eradicated as the Couch or Twitch graſs.

'*Poa Trivialis*, Rough-Stalked Meadow Graſs.

'This is a good graſs, both for paſture and hay; yet very inferior to the *Poa pratenſis*, as it is coarſer, and apt to go off after mowing. It is very productive, and loves a moiſt and rather ſhady ſituation.'

The obſervations on this graſs are juſt. It is one of the beſt and moſt common of paſture graſſes, occupying the richeſt ſoils.

'*Feſtuca Ovina*, Sheep's Feſcue Graſs.

'This graſs, though introduced here, is not entitled to the encomiums which ſome writers have beſtowed upon it.'

We remark, this plant does not live long in rich ſoils, and is a moſt trifling graſs, found only in arid paſtures, from which it is in vain to tranſlate it. The *Feſtuca duriuſcula*, however, with which Mr Amos has confounded it, is a much larger plant, common in rich light ſoils, where its delicate foliage is kept cloſe eaten by cattle.

'*Feſtuca Pratenſis*, Meadow Feſcue Graſs.

'The foliage of this moſt excellent graſs is very ſweet and productive. It is very hardy, and will grow in any kind of ſoil. It makes excellent hay; and all ſorts of cattle and horſes are fond of it.'

What is here ſaid of this graſs is accurate, and all authors agree in praiſing it. It may be added, that it delights moſt to grow in clay ſoils and loams. But it affords more hay, is ſweeter paſture, and bears the viciſſitudes of climate, and wetneſs and drought of ſoil and ſituation, far better than rye-graſs, or perhaps than any other graſs whatever.

'*Lolium Perenne*, Darnel or Rye-Graſs.

'This is a moſt excellent graſs, both for paſture and hay. The foliage of this graſs is early, but not very abundant, and is highly acceptable to ſheep and cattle. It is apt to run into flowering ſtems, and therefore requires to be cloſe fed down; and as it ſecretes and lays up a magazine of ſaccharine nutriment, particularly in the joints of its ſtem, ſo it affords more nouriſhment to horſes when made into hay, than any other of the natural graſſes, and it does not affect their wind; hence it is particularly preferable to hunters and racers.'

It would have perhaps been of as much importance to farmers, if Mr Amos had told them the manner of diſtinguiſhing what they call an annual ſort of this graſs, than all he has alleged about its uſe for race horſes. It is indeed ſaid, that the caſe of Rye-graſs dying the ſecond or third year, happens only where it has been too frequently ſown on the ſame ground. The common bad practice of too late cutting of crops deſigned for hay, may, it is ſuppoſed, be ſometimes alſo a cauſe of this frequently ſerious diſappointment to the farmer; but the introduction of Meadow-feſcue, in place of Rye-graſs, if it does not alarm the gentlemen of the turf, is the beſt cure for the evil.

'*Cynoſurus Criſtatus*, Creſted Dogs-Tail.

'This graſs is not very productive of foliage; is apt to run into flowering ſtems; and grows naturally in dry ſituations.'

That Ray or Ryegraſs ſhould ſtill be the only ſort of natural graſs, the ſeed of which is to be had in any quantity in the ſhops, is a diſgrace to this age and nation; as it ſeems agreed on by all acquainted with the ſubject, that Meadow Feſcue, and perhaps ſeveral other of the graſſes, are in every reſpect ſuperior to it.

Mr Amos has omitted many excellent graſſes for paſture; for inſtance, the Poa annua, or annual Meadow graſs, is, in ſome circumſtances, inferior to few others. It multiplies itſelf with uncommon ſpeed, and thrives on trodden grounds better than any other graſs. Its foliage is tender and grateful to cattle; and it is one of the beſt graſſes for the dairy.

If quantity of hay is the object, the ſtrong and tall rough graſs, called Cocksfoot (dactylis glomerata), which grows in winter, and is very early, and, in good ſoils, runs up to the length of between four and five feet, will yield, on the ſame ſort of ground, a crop double of that of Rye-graſs. It riſes alſo, quickly after being cut, and makes good aftermath.

Mr Amos having enumerated all the ſuppoſed qualities of the nine firſt mentioned plants which he calls artificial, and of the eight laſt mentioned natural graſſes, proceeds to direct how a good rich ſoil ſhould be laid down for paſture.

'The firſt thing to be done in laying down land to paſture, is to bring

bring it into a very fine clean tilth by fallowing it completely, and to allow eight or ten tons of dung to an acre.' He adds, 'Upon good rich ſoils, which are intended to remain in paſture for many years, the proper kinds and quantities of ſeeds to be ſown upon an acre, are as follows.

'Of Artificial Graſs Seeds.

Cow Clover, 4 pounds. White Clover, 18 ditto. Trefoil, 4 ditto.

'Of Natural Graſs Seeds.

Vernal Graſs, -	½ Peck.	Meadow Feſcue,	½ Peck.
Smooth Stalked Meadow Graſs,	1 Do.	Rye Graſs, -	1 Do.
Sheep's Feſcue, - -	¼ Do.	Rib Graſs, .	¼ Do.

We were rather ſurpriſed to find ſo few of the graſſes, treated of by Mr Amos, adviſed by him to be ſown on good rich ſoils intended for paſture. We might have wondered to find among them Sheep's feſcue, a plant very ſmall, that grows on exceedingly dry banks, ſhort-lived, and that cannot exiſt at all, if overſhadowed by luxuriant foliage, had we not obſerved that the author has miſtaken that minute graſs for a larger. This ſhows that he has not recommended this graſs *at leaſt*, from any perſonal knowledge of its good qualities.

It muſt alſo appear ſtrange, that rib graſs, which is not among his ſelect number, ſhould be recommended. This plant, we believe, is now got rather into diſrepute. The author, however, afterwards takes notice of it as follows.

'*Plantago Lanceolata*, Ribwort Plantain.

'This plant, properly ſpeaking, does not rank among the claſs of natural graſſes; but as it appears in ſo great quantity in moſt of our meadows and paſtures, not to mention it here might be deemed an unpardonable omiſſion. Horſes, cattle and ſheep are very fond of it; but it is not very productive.'

Linnæus ſays that cows refuſe this plant. Dr Withering obſerves, that when it grows detached from other plants, he has never ſeen cattle touch it. Mr Dickenſon relates an *experimentum crucis*; that twelve acres being ſown with it, a plentiful crop was produced, but no animal would eat it. On the other hand, there are not wanting ſome who allege that it occaſions rich milk; but probably on no better ground than ſuch an abſurd vulgar error as that mentioned in the Flora Ruſtica, by which it is conceived, that even the *Ranunculus acris*, and the other ſorts of *Crowsfoot*, common in rich paſtures, though ſhunned by cattle, contribute, by their ſplendid yellow flowers, to give butter the ſame colour, and are therefore called, vulgarly, Butter flowers and Butter cups.

Mr Amos goes on as follows.

'The firſt eight ſorts of natural graſſes are all that the huſbandman ought to ſow in laying down land to paſture; and, according to the nature

nature of the ſoil, the ſeed of that graſs moſt ſuitable to it ſhould predominate; but the two graſſes, No. 9. & 10.' (*Triticum-repens, Creeping-Wheat, Twitch, Wreck*, or *Couch-graſs*, and *Holcus-lanatus, Woolly-holcus*, or *Meadow-ſoft-graſs*, called alſo by ſome *White-graſs*, and *Yorkſhire-fog*, of both of which graſſes ſpecimens and botanical deſcriptions are given in the work under review) 'ſhould be held in utter abhorrence. And if it had not been to make them ſo well known, that they might be entirely rejected, I ſhould not have troubled my readers with either a view or a detail of them. And ſorry am I to ſee the *Holcus-lanatus* recommended in ſome of the prize eſſays communicated to the Board of Agriculture in 1801.'

But, pray, Mr Amos, condeſcend to give ſome reaſons for conſidering the *Holcus-lanatus* as bad herbage? Why would you have us to rely, in every point, on your mere *ipſe dixit*, when ſo many names, whom we have been in uſe to reſpect before you made your appearance, have recommended this plant? Dr James Anderſon ſays of it, 'Soft graſs (*Holcus-lanatus*), upon damp ſoils, is ſtill more early than rye-graſs, and forms a paſture graſs that may perhaps in ſome reſpects be very valuable.' Haller alſo ſpeaks highly of this graſs as early food for cattle. It produces an abundant crop, and is well adapted for moiſt ſoils and new drained peat bogs. And although cattle refuſe its flowering ſtems, yet theſe being cut, the plants ſoon grow again, and make good paſture, particularly for ſheep.

This leads us to a more general view of the ſubject of graſſes, which, we confeſs, is an important one. It has been particularly conſidered by Stillingfleet, Curtis, Swaine, Marſhall, Knap, Anderſon and others, who, in many inſtances, differ from Mr Amos, who takes no notice of any of them.

Have not the public a right to know upon what pretenſions this gentleman comes forward to teach them? Does he ſtate any practical experiments? No. Has he ſown any of theſe graſſes ſo as they might be eaten ſeparately by any ſpecies of animals? No. Has he tried the weight or value, in any ſhape, of the produce of even an acre ſown with any of theſe graſſes, either green or in hay? No. In ſhort, for any thing that appears in the work, the author may have either acquired a knowledge of the elements of botany, or copied his botanical obſervations, from others; and, with the aſſiſtance of the works of the gentlemen above mentioned, may have compiled this book in his cloſet, giving characters of the graſſes according to his own caprice.

Indeed, were it not from the title of this work, one would be inclined to think, from ſome hints dropped, that the original deſign of it was no more than to give a botanical deſcription of ſome of the graſſes. The author ſays,

'The difficulty of diſtinguiſhing the graſſes from one another, has no

no doubt proved one grand obſtacle to their cultivation. Many of thoſe plants are ſo much alike, that the moſt diſcerning botaniſts are often at a loſs to know ſome of them apart; if ſo, how eaſily may the huſbandman be deterred from the arduous taſk? But, perhaps, the chief reaſon has been, that perſons who might be expected to collect the ſeeds, and to make the improvements, have not had the means fairly put into their hands, of making the experiment. In order to remove that difficulty, and to enable ever huſbandman to experiment for himſelf, I ſhall here, not only give ſpecimens of eight ſorts of the beſt *natural graſſes*, but likewiſe ſuch a *brief deſcription of them, as will enable every huſbandman with certainty to collect them ſeparately*. He may then ſow them ſingly on ſeparate beds, or plats, and graze them for a conſiderable time, to determine their different effects in feeding and fattening different kinds of ſtock; and afterwards join them in different combinations and proportions, as the reſult of his experiments may direct. Whether the method I have adopted on this occaſion may be more ſucceſsful, muſt be determined by my readers. At all events, the time I have employed, the pains I have taken, and the expence I have been at, in collecting and *finiſhing* the graſſes, muſt be evident to every one of them.'

We preſume the author means, that it was no eaſy taſk to acquire ſo much of the knowledge of botany as is diſplayed in this work; for, what he means by *finiſhing the graſſes*, we do not pretend to underſtand; and it is not alleged, as far as we can diſcover, that he collected or ſowed the ſeeds of any of the plants deſcribed, or made any experiment except what he relates in treating of ſheep's feſcue, the graſs that he himſelf miſtook, while he pretends to have enabled 'every huſbandman to experiment for himſelf.' He ſays,

'In an experiment made upon all the graſſes recommended here (viz. the natural graſſes) which were each ſown upon ſeparate beds or plats, upon a lightiſh dry ſoil, and grazed promiſcuouſly with ſheep, I found this graſs was never ſo cloſe fed down as the other ſeven.'

It may be remarked, that all the plants in this work, called artificial graſſes, do not ſtrictly deſerve the name of graſſes. If, for inſtance, tares are to be denominated graſs, why may not peas be alſo called graſs? They ſhould, perhaps, be called green crops for cattle.

The author has not taken notice of a ſingle artificial graſs, that has not been known to farmers in this iſland for a great period of time (except thoſe he has miſtaken); and, as far as we know, he has thrown no new light on the ſubject of their culture. He has, indeed, recommended lucern for rich lightiſh ſoils, to more general obſervation; but he has praiſed many plants that others have ſeen cauſe to diſcommend, and that have never been generally cultivated by farmers in any diſtrict of Great Britain.

Beſides

Beſides clovers or trefoils, tares are in common uſe, and much eſteemed as a green crop. We here mean the *Vicia ſativa*, and its varieties, called by this author Summer vetch: For, as to the *Vicia lathyroides*, called by him the Winter, or Wild vetch, it is a moſt diminutive plant, that grows naturally on dry barren banks, ſeldom exceeding two or three inches in length; and upon what principle it is praiſed, we cannot diſcern, unleſs the author has miſtaken it for ſome other vetch, probably the *Lathyrus-pratenſis*, which is recommended by Linnæus, Anderſon, Curtis, and Young. The *Vitia-cracca*, a perennial, native vetch, of great length, has been alſo much commended; but the difficulty of eradicating it, prevents its being mentioned with much approbation by us.

If the author had meant to recommend, with effect, the other leſs known artificial graſſes to the notice of the grazier or farmer, he ſhould have endeavoured to have ſhown, experimentally, their comparative advantages above other green crops. In this, the merit of the work would have conſiſted.

Several other ſorts of green crops for cattle have been mentioned by different authors. Chicory, Succory or Endive, *Cichorium-intybus*, for inſtance, has been long cultivated in France and Lombardy, and is reputed to increaſe both the milk and fleſh of cattle; and to be freely eaten by ſheep. Buck wheat (*Polygonum-fagopyrum*) is alſo a common crop in many parts of the Continent; and in Norfolk not unfrequent. It is a plant of rapid growth, and may be ſown ſo late as the end of May with ſucceſs. It is ſometimes ploughed in as a manure, and ſometimes mowed for fattening ſwine and poultry, and feeding horſes. The Romans had green crops of Lupines, of Cytiſus, and ſeveral others that have never yet been tried in our fields. As ground tires of a repetition of the ſame crop, nature points out the neceſſity of a change.

With reſpect to the natural graſſes, with which the author adviſes ſowing grounds intended for paſture, he has ſaid very little new indeed; nothing to induce any one to alter the preſent ſyſtem; nothing to aſſure the grazier that, by ſowing them, he ſhall be enabled to keep *one fourth* more ſtock, as repreſented in the title-page, and often repeated in the work. It appears indeed reaſonable, that ſome of the beſt of the natural graſſes ſhould be ſown on lands intended for paſture; and many have been enumerated by different authors as proper for that purpoſe. Farmers, however, are ſtill left in a great degree in doubt about them; and perhaps may continue ſo, till ſome public-ſpirited perſon ſhall ariſe, who will ſow whole encloſed fields with natural graſſes of different ſorts ſeparately, and try their comparative merits with ſkill, judgment, and perſeverance.

Even

Even after the comparative merits of the graſſes are tried, in as far as regards good ſoils, it will remain to be inveſtigated, what ſorts are adapted for forming the moſt productive and beſt crops on the different ſorts of bad ſoils; for there are ſome good graſſes, the *Poa-flexuoſa* for inſtance, that cannot exiſt on a rich ſoil. We are informed, that Mr Don, ſuperintendant of the Botanical Garden of Edinburgh, is at preſent engaged in this inquiry; and we heartily wiſh him ſucceſs.

From Mr Don we learn, that he has tried the *Poa-nemoralis* (wood-meadow-graſs) on a dry bank, which has been covered with it theſe ſeven years. It grows from twelve to ſixteen inches in height; and he recommends it as a good graſs for dry poor gravelly grounds, where rye-graſs would not be productive. It makes a good hay crop; and is keenly eaten by horſes, cows, and ſheep, therefore good for laying down ſuch grounds to paſture. He alſo recommends the *Seſleria-carnlea*, *Poa-glauca*, and *Poa-alpina*, which grow on the higheſt mountains, as proper graſſes for poor and expoſed ſoils. The latter plant, though ſmall, continues freſh, and grows even in winter. The *Seſleria* flowers as early as March.

The title of the work does not agree with its contents. It bears to be 'Minutes in Agriculture and Planting;' but all that appears in the work upon the ſubject of planting, is a diſſertation of three pages on tranſplanting trees, preparatory to the introduction of an account of a machine for tranſplanting old trees, or rather for carrying old trees that are meant to be tranſplanted. The preliminary diſſertation, in our opinion, is incorrect in many inſtances, eſpecially the remarks, that the laburnum and the beech will bear to be removed when grown to 20 or 25 feet high; for theſe trees, particularly the laburnum, we have always found to be the moſt difficult of any to be tranſplanted, when aged, with the leaſt probability of ſucceſs. The lime-tree is, indeed, almoſt the only one that ought to be attempted to be removed at an advanced age. Large elms and willows, we have heard, have been alſo oft-times tranſplanted ſucceſsfully. But it is a fact well known, that we come ſooner to our purpoſe of ſhade or ſhelter, by planting the quick growing trees and ſhrubs when young, than by tranſplanting large trees. Even if particular kinds are wanted, the young and healthy plant will ſoon overtake the old tranſplanted tree.

As to the Tree Tranſplanter, it ſeems in every reſpect unworthy of the notice of farmers; but we recommend it to the attention of the great Emperor of France, who, perhaps imitating his grand predeceſſor Lewis the XIV., may require that an extenſive moor ſhall be inſtantly converted into another ſuch elegant park as Verſailles; and, for that purpoſe, that trees a hundred years old

old ſhall be removed by the machines of this ſecond Le Notre from the diſtance of hundreds of miles, by the aſſiſtance of thouſands of men and horſes.

If large trees muſt be tranſplanted and carried to a diſtance, with perſons of moderation, carts will anſwer the purpoſe; and Mr Marſhall, in his excellent treatiſe on planting, recommends to preſerve the roots of trees to be tranſplanted, as more worthy of attention, than carrying lumps of earth attached to them.

The other machines mentioned, in our humble opinion, do not merit any particular notice, nor do we think them calculated to produce any benefit to agriculturiſts.

The couch-graſs-drag machine, by which the author propoſes to clean land of couch-graſs roots, without ploughing or ſummer-fallowing, we cannot conceive poſſible to anſwer the purpoſe; and the couch-graſs-rake ſeems to do no more than what harrows can accompliſh.

The Scuffle for cleaning lands incumbered with bean or pea ſtubble, previous to the ground's being ſown with wheat, and for deſtroying weeds upon fallows, where ploughing might be injurious, ſeems ſuperfluous; for ploughing or harrowing, we apprehend, will in general ſerve every ſuch purpoſe, as there would be a multiplicity of implements, were all uſed that are invented.

The next machine deſcribed is a ſpike and plain roller in one frame, which may be uſed together, or ſeparately, and is called the Compound Roller.

Then follows a Sward-dreſſer, for levelling molehills on paſture grounds, and for tearing up moſs or fog. It is of the nature of a harrow, and drawn by two horſes.

The laſt machine is the Thiſtle-cutter, deſigned for cutting the thiſtles on paſture fields. It conſiſts of four ſcythes, is drawn by one horſe, and ſaid to cut twenty acres a day. We are of opinion, that thiſtles and ragworts may, in general, by farmers who keep their lands tolerably clean, be cut down by the common ſcythe. And although the field or horſe-thiſtle, which is the moſt troubleſome of the kind, is a perennial plant, yet, if frequently cut down near the root, may, as well as all the other larger weeds, with a little perſeverance, be certainly extirpated.

The deſcription of each of theſe machines is accompanied with an elegant engraving by Howlett.

The language of this work is frequently inflated; and ſo great an affectation is ſhown for the uſe of learned words, as ſometimes may extort a ſmile. As, for inſtance, *ſtorge* is a Greek word not in common uſe, and in the paſſage wherein it

it is uſed by Mr Amos, would have been better ſupplied by the home-learnt word 'affection.' In deſcribing ſugar, the following high-ſounding apoſtrophe is introduced: 'Great God of juſtice and wiſdom, grant that this luxury may in thy good time be cultivated by the hands of free men, and may thence give happineſs to the labourer, as well as to the merchant and conſumer.'

The ſeven natural graſſes recommended, together with the *Feſtuca duriuſcula*, miſtaken for the ſheep's feſcue graſs, and alſo two graſſes not approved of by the author, viz. couch graſs and ſoft graſs, are illuſtrated by ſpecimens in the nature of a *hortus ſiccus*; and the ſix firſt of them are repeated in elegant coloured prints engraven by Barnard. We remark, that it is inexplicable why the whole graſſes, artificial and natural, praiſed in the book, are not exhibited; and more ſo, that ſome graſſes ſhould be doubly obtruded to our notice.

Upon the whole, this work is of the greateſt importance to the farmer,—on account of the very high price he muſt pay for it; but though the prints and decorations, no doubt, enhance the price much beyond the extent of ſolid information communicated, yet the author ſhould have remembered, that the value of ſuch a book is to be eſtimated from its intrinſic uſefulneſs, and not from its extrinſic decorations: For

What is a butterfly at beſt?
What! but a caterpillar dreſt.

S.

Obſervations on the Preſent State of the Highlands of Scotland, with a View of the Cauſes and probable Conſequences of Emigration. By the Earl of Selkirk. Longman & Co. London. Conſtable & Co. Edinburgh.

For ſeveral years paſt, the ſubject of emigration has agitated the public mind, and occupied the attention of every perſon connected with the Highlands of Scotland in ſuch a degree, as to occaſion ſome legiſlative regulations, which probably were unneceſſary, but at any rate interfered with the natural liberty of thoſe upon whom they were meant to operate. Under theſe circumſtances, we are glad to ſee the ſubject inveſtigated, and its bearings and conſequences aſcertained by a perſon poſſeſſed of ſuch eminent abilities as confeſſedly belong to Lord Selkirk; and are highly gratified by the accurate and ingenious picture of the former and preſent ſtate of the Highlands of Scotland, now preſented to us by his Lordſhip.

It

It is well known that Lord Selkirk, in the year 1803, formed a ſettlement on the iſland of Prince Edward, in the Gulph of St Lawrence, near the coaſt of Nova Scotia; and that he carried out from the weſtern Highland diſtricts, above eight hundred perſons of all ages, who previouſly had it in contemplation to emigrate to the United States. The miſrepreſentations generally circulated concerning his Lordſhip's motives in making this ſettlement, need hardly be mentioned. Suffice it to ſay, that he was accuſed of attempting to drain the Highlands of a conſiderable part of their population, and of acting under the force of political opinions, inconſiſtent with the proſperity of his native country. Thoſe who were ſufficiently acquainted with Lord Selkirk, laughed at ſuch accuſations, becauſe they were ſatisfied that whatever might be his Lordſhip's opinion of men and meaſures, none entertained ſentiments more liberal or juſt on every ſubject connected with the welfare of the community, and none whoſe private character and conduct could bear a more ſtrict and ſevere ſcrutiny. Thoſe who are not acquainted with his Lordſhip, may have their doubts removed by a peruſal of the preſent publication.

Lord Selkirk, at an early period of life, turned his attention to the ſtate of the Highlands; where, to a ſpeculative mind, a very extenſive field of inquiry was opened. The introduction of ſheep farming had recently taken place, and the inhabitants had ſhewn their marked averſion to that new and improved ſyſtem of huſbandry. The ſtyle of living had experienced a conſiderable change, and the Lowland manners and practices were making rapid advances among the Highland gentry. Their expences became greater as the value of money decreaſed, and it was neceſſary to turn their eſtates to the beſt account, ſo as they might be enabled to ſupport the rank in which they were placed. From the firm meaſures taken to ſuppreſs the Roſsſhire riots in 1792, the Highlanders had ſagacity ſufficient to diſcern, that the proſpect of remaining long in their old poſſeſſions was very uncertain, from their total inability to offer an equal rent with their competitors. Emigration was the reſource which they preferred. This proceeded to a very great extent; and, ere long, the Highland proprietors (eſpecially thoſe who were leaſt in the habit of reſiding on their properties) became panic-ſtruck, and were alarmed, leſt their eſtates ſhould become tenantleſs and waſte. The few to whoſe care the buſineſs of that numerous body, the Highland Society, was at the time committed, ſuggeſted the propriety of endeavouring to obtain ſome act of the Legiſlature to put a ſtop to emigration. On mature deliberation, they found that

this was impoſſible; and they betook themſelves to the plan mpoſing ſuch regulations reſpecting the tranſportation of emi- ıts, as neceſſarily would deter the emigrant traders from freight- veſſels for the purpoſe of carrying off the people. Had the hland Society conſulted ſuch Highland proprietors as are in the t of reſiding on their eſtates, they would have found them ready to part with their ſuperfluous population, although, in y inſtances, humanity would not permit them to turn them ſt. To ſhew that emigration muſt neceſſarily increaſe, in pro- ion to the improvement of the Highlands, and that it is of t conſequence to divert the tide from the United States of A- ica to our own territory, are the objects of Lord Selkirk's pub- ion. The latter object, we are told in the introduction, was ıght into the notice of Government, with the view that eſta- ıments might be formed of Highland emigrants, in our own itory, and at the public expence. His Lordſhip's propoſals, 'ever, not having been favourably received, he reſolved, at his ı riſk, to try the experiment; and having purchaſed a tract of ls in the iſland of Prince Edward, he applied himſelf to the cult taſk of diverting thoſe, who were about to emigrate, ı the United States, to our own colonies; and he has ſuc- led.

ı very conciſe ſtyle of reaſoning has been adopted in this pub- ion. Lord Selkirk has traced the changes which have taken e ſince the feudal times, in a clear, and, to us, a very ſatisfac- manner. In the Firſt chapter, a ſuccinct account of the ſtate he Highlands in former times, in regard to the connexion of chieftains with their tenants, is given. The value of an e- : in thoſe times, was reckoned from the number of men the ɔrietor could call out. Agriculture was but a ſecondary con- ·ation, and, conſequently, the extent of land in tillage was ll, and the time occupied in the management of it but ſhort. courſe, when not engaged in warfare, the people were idle. whole policy of the Highland gentry conſiſted in retaining affections of their numerous tenantry; and while they wiſhed ıe independent, they dared not raiſe their rents. A ſudden ıge of policy took place after the rebellion in 1745. Their nu- ɔus followers were no longer of uſe to the chieftains, either lefence or plunder. By degrees, the attachment of the gentry ıe people, and of the people to the gentry, diminiſhed; and inſtances can now be adduced of chieftains retaining any t number of the ancient adherents of their families, unleſs ıpted thereto by vanity. The conſequence of this change in population, through the prevalence of paſturage, ſheep-

farming and engroſſing of farms, is the ſubject of the Third chapter. It is there ſhewn, that, in conſidering the ſtate of the Highlands in regard to population, the ſure way is to inquire, not how many people the produce of the country will feed, but to how many employment can be afforded. When we conſider, farther, that the greateſt of all wants to a populous country, the want of fuel, neceſſarily prevents any aſylum for manufacturing induſtry being eſtabliſhed in the Highlands, we cannot wonder at the ſudden appearance of a great ſurplus in the population, the condition of the country being ſo ſuddenly changed.

'It has often happened,' ſays Lord Selkirk, 'that thirty or forty families have been diſpoſſeſſed all at once, to make way for a great ſheep-farm:—and thoſe who have attended to the preceding details will eaſily underſtand the dilemma to which every one of theſe people muſt be reduced. The country affords no means of living without a poſſeſſion of land: and how is that to be procured? The farms that are not already in the hands of the graziers, are all full of inhabitants, themſelves perhaps in dread of the ſame fate, and, at any rate, too crowded to make room for him. Should he, in ſpite of every difficulty, reſolve to earn his bread as a labourer, he can expect no employment in a neighbourhood, where every ſpot is occupied by many more people than are neceſſary for its own work; and if any caſual opportunity of employment occur, it is too uncertain to be depended upon. Let his induſtrious diſpoſitions be ever ſo great, he muſt, in the total want of manufacturing employment in his own neighbourhood, quit his native ſpot; and, if he do not leave the kingdom altogether, muſt reſort to ſome of thoſe ſituations where the increaſing demand for labour affords a proſpect of employment.' p. 45.-6.

'To the diſpoſſeſſed tenantry, as well as to the cotters, who by the ſame progreſs of things are deprived of their ſituation and livelihood, two different reſources preſent themſelves. They know that in the Low Country of Scotland, and particularly in the manufacturing towns, labour will procure them good wages; they know likewiſe that in America, the wages of labour are ſtill higher, and that from the moderate price of land they may expect to obtain not only the poſſeſſion of a farm, but an abſolute property.

'Of theſe alternatives, every one, who is acquainted with the country, muſt admit that emigration is by far the moſt likely to ſuit the inclination and habits of the Highlanders. It requires a great momentary effort; but holds out a ſpeedy proſpect of a ſituation and mode of life ſimilar to that in which they have been educated. Accuſtomed to poſſeſs land, to derive from it all the comforts they enjoy, they naturally conſider it as indiſpenſable, and can form no idea of happineſs without ſuch a poſſeſſion. No proſpect of an accommodation of this kind can enter into the views of any one who ſeeks for employment as a day-labourer, ſtill leſs of thoſe who reſort to a manufacturing town.' p. 47.-8.

The

The Fifth chapter treats of the political effects of emigration. The circumſtances which formerly rendered the Highlands a nurſery of ſoldiers, are ſhown not now to exiſt, and that the loſs of this national advantage does not depend on emigration. The tenantry having become independent, as much as the tenantry in any other part of the kingdom, their habits have been changed. They can now derive no advantage by ſending their ſons into the army: their farms will not be rendered more ſecure to them, nor will their rents not be raiſed, by their bribing their landlords with a few recruits. Some few popular characters may yet be able to raiſe a few men for their friends, but clanniſh attachment, on which recruiting formerly depended, is not to be found; and we cannot therefore look for its influence.

The Sixth chapter proves, that the emigration of the Highlanders is intimately connected with the progreſs of national proſperity, and not detrimental to manufactures nor agriculture. Were the people who emigrated, induſtrious workmen, their emigrating might readily be allowed to be prejudicial to the country. But as they are directly the reverſe, the effects of their leaving the country are alſo the reverſe. Although the population may be diminiſhed for a time in ſome diſtricts, yet the general population of the kingdom will not be found affected. It is an important fact, that on ſome of thoſe ſheep farms which were firſt eſtabliſhed, there are more inhabitants than there were before the introduction of ſheep. In theſe, we have an inſtance of the increaſe of population proceeding with the increaſing productiveneſs of the ſoil. And when we conſider, for a moment, that the increaſing quantity of wool which is annually exported from the Highlands, muſt require a proportional increaſe in the number of hands for manufacturing it, the melancholy forebodings of the depopulation of the country will vaniſh. How much better is it for the country to encreaſe its marketable productions, by indulging the people in their inclination to go either to America, or ſeek employment in the manufacturing diſtricts at home, than to place an everlaſting bar to improvement, by ſubdividing the land into minute portions, and encouraging ſloth and immorality, by permitting the illicit diſtillation of ſpirits!

The abſurdity of Highland proprietors crying out againſt emigration, when it is evidently their own handywork, is forcibly pointed out.

Chapter Seventh treats of the means that have been propoſed for preſerving the population of the Highlands, ſuch as the improvement of waſte lands, fiſheries, manufactures. Theſe, it is ſhewn, cannot obviate the neceſſity of emigration.

The tenantry, in almoſt every inſtance, will emigrate, rather than degrade themſelves by deſcending to undertake the cultivation of a waſte. The poor miſerable cotters are the only deſcription of people who can be got to ſettle on theſe lands. But as ſoon as they have improved ſo much as is ſufficient for the maintenance of their families, their half-formed habits of induſtry relax into indolence: and, in all probability, when they have improved as much waſte land as will form a good farm, the proprietor may remove them to make room for ſome man of capital, and then their condition becomes worſe than before. With reſpect to the fiſheries, we have ſome important obſervations. Without detailing them, we ſhall be content with obſerving, that we truſt they will be noticed by thoſe who are intereſted in the ſucceſs of the fiſheries. We cannot, however, leave this ſubject without tranſcribing the account of the village eſtabliſhed by Mr M'Lachlan.

'It is with pleaſure I learn' (ſays his Lordſhip) 'that the practicability of this ſuggeſtion has been aſcertained by experimental proof in a village on Loch Fyne, eſtabliſhed by Mr Maclachlan of Maclachlan. That gentleman, finding himſelf a number of years ago under a neceſſity of thinning the population on ſeveral of his farms, ſelected ten or twelve families of the pooreſt cotters,—men, however, whom he knew to be capable of laborious exertion. Theſe he fixed in a ſituation on the ſhore, where he furniſhed them with two ſubſtantial fiſhing boats of the beſt conſtruction, with all their apparatus, on condition that their coſt ſhould be repaid to him from the produce of their induſtry. Anxiety to diſcharge their debt ſtimulated theſe men to exertion, and a ſeaſon or two of ſucceſsful fiſhing left them free proprietors of the boats they had been furniſhed with. The proprietor was ſenſible that, from the habits of theſe people, they would think it impoſſible to live without ſome land; and that, in fact, from the want of markets for purchaſing proviſions, ſuch an accommodation was to a certain degree indiſpenſable in the preſent ſtate of the country. He therefore laid out a part of a farm for them, and, to avoid diſheartening them, allowed them to poſſeſs it for a year or two at an inadequate rent. By degrees, however, he raiſed it to its full value, ſo that the poſſeſſors cannot truſt to the land for their ſupport, having no means to pay their rent unleſs they are induſtrious in their fiſhing. Other inhabitants have likewiſe been brought to the village, and the original portions of land ſubdivided, ſo as to become to every individual a mere accommodation, and an object entirely ſubordinate. When the further progreſs of the country towards a commercial ſtate leads to the eſtabliſhment of markets for proviſions, theſe people, being already brought to ſuch a degree of advancement, may be entirely deprived of land without any fear of their being diſconcerted by the change. The ſucceſs of the firſt fiſhermen has been ſuch, that they have fitted out a number of additional boats, of the beſt conſtruction,

at

at their own charge; and ſeveral of them have accumulated conſiderable ſums of money.' p. 101.–103.

The natural diſadvantages of the Highlands, ſeem to exclude every proſpect of the eſtabliſhment of manufactures. We can only look for them on ſome parts of the coaſt, and there on a ſmall ſcale. The eſtabliſhment of manufactures, Lord Selkirk obſerves, might affect the migration of thoſe claſſes who now wiſh employment in the old eſtabliſhed ſeat of induſtry; but to the ſmall tenants, the ſame objections which occur againſt a manufactory in the ſouth, would apply equally to a ſimilar employment in a ſituation a little nearer home. There is no probability, therefore, that ſuch eſtabliſhments could have any effect on thoſe who are inclined to go to America.

In chapter Eighth, emigration is ſhewn to have no permanent effect on population; that legal reſtrictions on emigration are not only uſeleſs, but, from the diſcontents which prevail in the Highlands, dangerous. Theſe diſcontents have of late increaſed, in no ſmall degree, from the violent meaſures which have been adopted by the Exciſe to ſtop illegal diſtillation. Poor people, whoſe all did not exceed forty or fifty pounds, have been fined 400l., and are left ſtarving in jail. Some meaſures, we underſtand, are to be taken, in order to bring to the notice of Government the hardſhips which the Weſtern Highlands endure from the preſent ſtate of the Exciſe laws. *

In chapter Ninth, the prejudices of the Highland proprietors, and

* We are happy, however, to have it in our power to obſerve, that, in ſome diſtricts, diſcontent is diſappearing. A few native Highlanders are beginning to adopt a better ſyſtem of agriculture; and ſome have conſiderable flocks of ſheep. One inſtance, we cannot help recording; as it holds out the agreeable proſpect, that by the time the riſing generation of Highlanders are able to undertake the mangement of farms, they will have loſt the prejudices which, in their early age, they have imbibed, from ſeeing their own friends profiting by conduct which they were taught to conſider as madneſs. A Highland farmer in the north, was prevailed upon by his landlord to ſow a very ſmall corner of a field deſtined for potatoes, with turnips. He found that the produce was ſo beneficial to him, that the next year he ſowed three acres in drills. On a moderate calculation, he himſelf found that between ſaving and direct profit, theſe three acres had given him above 30l. When his landlord aſked him how he liked turnips after this trial, he firſt gave moſt ſincere and hearty thanks; and then ſaid, that were he offered the higheſt premium ever given for agricultural improvement, he would not relinquiſh the culture of turnips. He has this ſeaſon about eight acres of them, and a few of his neighbours ſmall patches.

the miſtakes from which they have ariſen, are pointed out. The conduct of the Highland Society, and the Emigration Bill, are examined in chapter 10th. Theſe, with the two laſt, which ſhew the importance of emigration to our colonies, and the means of inducing emigrants to go to them, inſtead of the United States, and detail the proceedings and ſucceſs of Lord Selkirk in his undertaking, are highly intereſting. But our limits will not permit us to indulge ourſelves, by offering an abridgement of them to our readers. To every one, whether connected or not with the Highlands, who delights to watch over the improvement of his country, this performance will be intereſting. The modeſty which characterizes it, reflects as much credit on its noble author, as the ability with which he has treated his ſubject; and we hope that every Highland proprietor will peruſe this work; not that we wiſh it to have the effect of inducing them to drive their tenantry from their eſtates, but of perſuading them to adopt prudent meaſures in the management of their properties, that the people may have time to prepare, and may leave them without ſhewing any diſcontent. When all things are conſidered, it is but common juſtice to give the Highlanders notice a year or two before their removal, for two reaſons eſpecially: firſt, that they may have time to reflect on what courſe they are to purſue, and to prepare for commencing a new mode of life,—for leaving idleneſs, and entering on a life of induſtry.

Upon the whole, every meaſure tending to retard emigration, unleſs calculated to procure employment and maintenance to the people, muſt be characterized as abſurd and impolitical. It rarely happens, that thoſe comfortably ſituated at home are diſpoſed to emigrate; therefore, to impede the removal of ſuch as are not comfortably ſituated, or who cannot find employment, ſeems a meaſure equally fooliſh and dangerous as corking up the human body would be. The political body ſtands in need of evacuations as well as the human; and reſtrictions on either, neceſſarily produce the like fatal and diſagreeable conſequences.

C.

BRANCH

BRANCH III.

AGRICULTURAL INTELLIGENCE.

THE corn crops, particularly that of wheat, were in a critical ſtate when our laſt Number went to preſs; but fine ripening weather having followed, the whole were ſafely harveſted; and, from the returns tranſmitted to us, it appears that the general amount of the produce of this year may be eſtimated as fully equal to that of an ordinary average. We are not, however, from this to ſuppoſe, that the produce will exceed what is required for anſwering the demand, or, in other words, that, after ſupplying home conſumption, a certain quantity will remain for exportation. So far from this being the caſe, we have our doubts whether the crop, good as it is, will be ſufficient for feeding our own people. Population has increaſed conſiderably; the unproductive hands, who muſt be fed at a greater coſt than if they ſupported themſelves, are ſo numerous, and luxury has advanced with ſuch rapid ſtrides among every claſs, that perhaps double the quantity of grain is now required to ſatisfy the demand than was neceſſary thirty years ago. Whether we are preciſely right or not in this general concluſion, is a matter of ſmall importance. It is ſufficient for our argument, that the conſumption of the country is much augmented, when compared with that of former years.

What we have ſtated with regard to grain, is ſtill more applicable to butcher-meat, an article now in common uſe amongſt all deſcriptions of people. The breed of cattle and ſheep is undoubtedly much improved; the mode of rearing and feeding them is equally meliorated; and yet the markets, except at ſome particular periods, rarely experience an over-ſupply. The only legitimate inference from theſe premiſes is the one already made, namely, that the demand, owing to the circumſtances condeſcended upon, is of late materially increaſed.

The markets for farm-produce, till lately, were tolerably ſteady, and even at this time have not dropped much. Of wheat, a full ſupply has been thraſhed out in every diſtrict, which, joined to the ſtore of imported foreign grain on hand, has rather occaſioned a temporary glut. The quality of wheat, this ſeaſon, is more variable than in the two preceding years. Some of it is mildewed; many fields were lodged by the rains of July; but, from being univerſally well ripened and harveſted, the produce, when mealed, is healthy and nutritious, and not defective in quantity. The other grains are equally ſound; and inſtances, of a greater return from oats than ever known, are numerous. The butcher market is rather lower than in the preceding quarter, though lean ſtock are fully as high as laſt year. Ewes of good quality are ſeveral ſhillings per head dearer; and the demand for the improved breeds has been greater than uſual.

A general riſe of harveſt wages took place this ſeaſon in every diſtrict; and, on ſome farms, more money was expended in cutting the crop than formerly was paid to the landlord under the name of rent. The weather, however, being excellent, the riſe was leſs felt than neceſſarily would have happened under different circumſtances. Opportunity was allowed for executing operations in the moſt perfect manner; and few days of idleneſs intervened betwixt the commencement and concluſion of harveſt work.

Turnips, which at one time were expected to be a heavy crop, have latterly ſuſtained much injury from the ſevere drought of autumn, and will now prove, in general caſes, to be greatly inferior to what was looked for. It is believed they will be leſs able to withſtand froſt when ſo much mildewed, than if they had remained healthy and vigorous. Potatoes alſo ſuffered in many places, though, on the whole, this eſculent is ſufficiently plentiful, and, in almoſt every caſe, of excellent quality.

We noticed in our laſt Number, that the Publiſhers of this work, in imitation of the laudable example ſet them by Sir George Stewart Mackenzie of Coul, Baronet, had authoriſed us to offer a premium of Five Guineas for the beſt eſſay on the Culture of Wheat; and with pleaſure we now intimate, that Sir George requeſts us to offer a gold medal of Ten Guineas value, or that ſum in money, to the author of the beſt eſſay on the following important queſtion—important it certainly is to Highland proprietors, and every one who wiſhes to ſettle in theſe diſtricts.

'What is the nature and extent of the encouragement which ought to be given to a South-country farmer who ſettles in the Highlands, and undertakes to manage the premiſes in a huſbandman-like manner, or, more particularly, according to ſoil, climate, and other local circumſtances; it being underſtood that the land is preſently in the hands of ſmall poſſeſſors, and, conſequently, in bad condition?'

While we beſtow our mite of praiſe on the active exertions of the worthy Baronet to promote the improvement of the country, and recommend the important queſtion adduced by him to the conſideration of our friends, we cannot avoid noticing that many ſubjects are embraced therein, which will require the moſt ſerious and deliberate inveſtigation. Security of poſſeſſion to the tenant, and comfortable accommodation, are at firſt ſight neceſſary; but the preſtations and obligations which he ought to come under, are not ſo evident; and, in fact, ought to be regulated by local circumſtances. As, for inſtance, whether he ſhould be bound to encloſe and improve mooriſh ſoils?—to lime a certain quantity thereof, or be ſubjected to any ſet of reſtrictions during the leaſe, or at its concluſion?—are queſtions not eaſily ſolved. Competitors will, however, hold theſe things in view, and give ſuch opinions as to them ſhall appear beſt calculated for the benefit of both parties, and the intereſt of the country. Where extenſive improvements are wiſhed for in waſte or uncultivated diſtricts, it has always appeared to us, as the beſt way, to connect the tenant's intereſt with his duty,

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or, in other words, to give a leaſe renewable at certain periods, providing the meliorations condeſcended upon have been executed. Landlords undoubtedly ſacrifice a portion of their intereſt in this way; but, ultimately, the original loſs is repaid to them, or their heirs, with double or triple advantage. A landlord muſt either improve his land, in this way, by others, or do it himſelf; and which of the two ways is preferable, ſhall not, at this time, be inveſtigated.——*Oct.* 25.

Extracts from Private Correspondence.

SCOTLAND.

Letter from a Gentleman in Berwickſhire, October 5. 1805.

'Harvest, in this part of the country, is now generally over, and the crop in capital order, and ſafe headed. The ſeaſon has been propitious, equal to, if not exceeding, all former ones in our remembrance. Upon the whole, the crops, eſpecially of wheat, are bulky, and ſeem productive; and I believe a much larger breadth of this grain, eſpecially ſpring-ſown after turnips, than in any former year, has been reaped. For ſome years, the culture of barley has been much on the decline; under an idea that wheat pays much better, and is not exhauſting, under our plan of alternate huſbandry and paſture. The oat crop is generally reported to be light; the barley middling; peas and beans corny, but not bulky.

'In conſequence of the exceſſive and long continued dryneſs of the paſt ſummer and autumn, the turnip crop has ſuffered very much, eſpecially upon thin ſoils with dry bottoms. Large extents of that uſeful plant have made no progreſs whatever during the months of Auguſt and September, and are now ſickly, pale, and withered; inſomuch, that good turnips are expected to let uncommonly high, while, two months ago, owing to the large extent ſown in this country, the common opinion was, that their price would neceſſarily be unuſually low.

'The fallow lands have been moſt uncommonly well wrought, and are generally very clean and fine; but, from the extreme drought, they are almoſt entirely deſtitute of moiſture; and many farmers are afraid to ſow, leſt the ſeed periſh.

'From the ſame want of moiſture, it is hardly poſſible to break up the ſtubbles, either thoſe intended for next year's turnip and fallow, or peas or bean lands for wheat; and paſtures are rather falling off, though the ſtock is univerſally in good order.

'Store ewes for next year's lamb, ſold very high at laſt St Ninian's fair. Well-bred ewes as high as fifty pounds a ſcore; under-bred ſhort ewes, from thirty to forty, according to goodneſs. Fat ſheep by no means bear an equal proportion.

'Berwick corn-market ſtarted very high this year; and on Saturday the 28th September, good new wheat ſold from 55s. to 60s. our boll of ſix buſhels. This day, 5th October, ſales are rather dull, and a few ſhillings lower; ſay from 50s. to 55s.; good barley, 28s.; and potato oats 22s.—all by the ſame boll.

'The hay crop was uncommonly good, and well got: Price 5d. or 6d. the ſtone of 22½ pounds.

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Banffſhire Quarterly Report.

Soon after the date of laſt report, rainy weather enſued, which retarded hay harveſt, lodged many fields of corn, and kept the ripening proceſs, in the upland diſtrict, much later than otherwiſe would have happened. General harveſt took place about the middle of September; but, as no more than a fortnight of ſteady weather has been got ſince its commencement, there remains, at leaſt, one third of the crop of this county in the fields. Conjectures are at variance with regard to the produce; but, ſhould it be got ſafely ſtacked, it can ſcarcely be reported as equal to a fair average. Oats are bulky; but will not yield ſo much of the perfect article as laſt year's. Barley is defective; and peas, in few caſes, will give three returns.

Cattle continue to go off at moderate prices; thoſe, in tolerable condition, fetch from 7s. to 8s. per ſtone Amſterdam, fink; and there will be abundance of *keep* for thoſe that remain on hand. Turnips are a good crop; but the want of a market for fat cattle, will cauſe feeding for the butcher to be abandoned by many farmers. From a combination of circumſtances, dealers may almoſt depend on finding a ſtock of cattle in Banffſhire, next ſpring, ſuperior to any that has been ſent from the diſtrict in former times.

The prices of grain are not yet eſtabliſhed; nor is much inquiry making about purchaſes in the diſtrict. There is no regular corn-market within its bounds, which keeps farmers in the dark as to the value of grain; and few being provided with granaries, conditional bargains are often, from neceſſity, made with the merchant. The lower part of the county, which is well cultivated, produces as good oats in ordinary ſeaſons as are raiſed in the ſouthern counties, though, from two circumſtances, the grain here is characterized as of inferior quality by the generality of importers at a diſtance. 1. Many farmers have a cuſtom of ſelling none but their worſt oats, retaining the beſt at home, for making into meal, and other purpoſes. 2. A baneful practice is permitted in the manufacturing of meal, namely, mixing barley with the oats, which is ſanctioned by the merchant to a certain extent, though generally exceeded by the manufacturer. From theſe two circumſtances, very injurious conſequences neceſſarily fall upon the farmer; for the merchant ſeeing no grain but what is of inferior quality, and no meal but what is adulterated and of a bad flavour brought from the county, naturally infers, that ſoil, climate, or cultivation, diſqualifies it from producing good grain. If the mixing of barley amongſt oats, when manufactured into meal, was prohibited, it is probable theſe evils would find a remedy. At all events, if the mixture was given up, the meal manufactured here would recover its character, it being well known, that though mixed meal may paſs at firſt, yet afterwards, when kept, it is highly diſagreeable.——*Oct.* 18.

Letter from a Gentleman in the Diſtrict of Carrick, October 22.

'The weather in this part of the country, from the beginning of July to very near the end of September, was generally wet, with an uncom-

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mon degree of warmth: this occaſioned a moſt luxuriant vegetation, and was favourable to the growth of oats, which is yet our ſtaple crop. For a month paſt, we have had a courſe of the fineſt weather ever known at this ſeaſon, there being only about one day's ſerious rain during all that time. This has occaſioned the harveſt to be finiſhed in the beſt manner, and the ground, for winter crops, to be put in a ſtate of complete preparation.

'Our crop of oats is generally more bulky than laſt year, though there are ſaid to be ſome exceptions. The wheat crop, from the extreme cold and froſty weather in the beginning of the ſummer, when it extends its roots and branches, is rather thin, but of good quality. This is ſaid to be the caſe with the bear and barley, owing to the ſame cauſe. Beans are good, and peas are luxuriant in ſtraw, but not in fruit. Turnip is every where good, and no complaints of fly or caterpillar have been heard. Potatoes are fully a third, and, in many places, a half more than laſt year. Upon the whole, our crop may rather exceed an average. There is only one thing which the farmers are apprehenſive about, and that is the productive quality of their oats; and, ſo far as they have made the experiment, there would ſeem to be ſome ground for apprehenſion. Oats, which uſed to yield from 20 to 25 and 26 pecks of meal per boll, (8 Winchester buſhels), are ſaid to be deficient from 3 to 5 pecks in the boll; and this is reported to be the caſe, too, all to the ſouth of this. Two reaſons are aſſigned for this, (for we muſt ſtill have reaſons for every phenomenon,—acting upon the Lucretian ſyſtem, of peeping behind the curtain, that we may ſupport our own vanity, inſtead of admiring and adoring the manifold wiſdom of God diſplayed in all his works); 1. The rapid and protracted vegetation in conſequence of the continued warmth and moiſture, thereby increaſing the thickneſs of the huſk, and diminiſhing the kernel; Or, 2. The great quantity of electrical or elementary fire with which the atmoſphere abounded, during the months of Auguſt and September, occaſioning the grain to ripen too ſuddenly before it was thoroughly matured. Perhaps there may be a good deal of truth in this laſt reaſon. But whatever may be the cauſe, the fact ſeems to be certain and univerſal, both here and to the ſouth of us; and, in that caſe, the crop of oats, inſtead of being abundant, as was ſuppoſed, may be found no more than ſufficient.

'The paſture mended, after the rains came on, remarkably; and many people, who ſaved their aftermath of ſown graſs, had nearly as much bulk from the ſecond as they had from the firſt cutting. The ſale of cattle and ſheep, of courſe, was briſk, and the prices rather advanced. The oat meal, which I believe is looked upon as the regulating ſtandard, has remained ſteady in the county town for a long while at 18d. the peck. The prices of wheat, bear and barley, cannot be ſaid to be yet fixed; but what has been ſold ſince harveſt, is at a reduction of 4s. or 5s. the boll, though it is expected it will not continue ſo, as theſe crops are not at all any way remarkable, nor by any means ſo good as laſt year.

' Agriculture

'Agriculture is making rapid progreſs through this country, notwithſtanding the obſtacles it has to encounter from the advance in the price of farm labour, of rents, and of public burdens. This improved mode of culture, together with the increaſed and increaſing value of farm produce, creates an eager demand for farms, and ſuch an increaſe of rent as, fifty years ago, an angel from heaven would not have been believed, if he had foretold it. Double, triple, quadruple rents are aſked, and given, upon a new leaſe. This may do, ſo long as trade and manufactures are protected and flouriſh, and if the property tax, and the other ſpecific burdens accruing from the war were once removed; but, conſidering the precarioufneſs of theſe, and the other nice hinges of wind, weather, and ſeaſons, upon which agriculture turns, farmers may be conſidered as the moſt intrepid and adventurous ſet of men exiſting.

'Ye guardians of the public, protect and encourage them; they are your ſupport; and the welfare of ſociety depends upon their proſperity!!'

Letter from Falkirk, October 24.

'HARVEST was ſomewhat later in beginning than laſt year; but, from a long continued tract of very fine weather, it was as early concluded, and the crop ſecured in excellent condition. Wheat is of good quality, and uncommonly bulky; ſhould it turn out well on the barn floor, which as far as trials yet go, it promiſes to do, it will be conſiderably above an average crop. Beans are alſo above an average crop in bulk, but are not expected to give a proportional quantity of grain. Barley and oats, eſpecially the former, are probably below an average; and, from the trials yet made at the mill, oats don't promiſe to meal well; and this deficiency is thought greater in the potatoe than in the common oats comparatively. Potatoes are an ordinary crop, but every where of ſuperior quality. Combining all theſe circumſtances, I think we are warranted in concluding, that, upon the whole, we have gained a full average crop, which, in the preſent ſtate of affairs on the Continent, and the little probability of ſupplies from that quarter, may be reckoned a fortunate affair. From theſe things, an opinion, often of late maintained, will probably be brought to the teſt this year, that this country, with an average crop, cannot ſupply her own conſumption.

'Harveſt work was very expenſive during the hurry of it; wages for women reapers being 2s. 6d. per day with victuals, which cannot now be reckoned leſs than 9d.; and men 3s. Wheat is ſown this ſeaſon to a greater extent than was ever known in the Carſe; it has been put into the ground in the fineſt condition, and a vigorous healthy braird is every where to be ſeen. The wheat land has indeed harrowed too fine, which we reckon unfavourable for ſtanding againſt the ſpring froſts. Young graſſes are very thriving, and winter ploughing is far advanced. Our corn-market continued pretty ſteady, except in the article of wheat, which has lately fallen conſiderably. The preſent prices may be ſtated as follows:—Wheat 35s. per Linlithgow ſtandard boll, Beans 25s., Barley 36s., Potatoes 6s. all per Stirlingſhire boll; Oat-

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meal 17½d. per peck of eight pounds Dutch. Our price for Hay turned out better than was looked for at the time of laſt report, having ſettled at 8d. per ſtone. In the butcher market, there has been little fluctuation. Beef at preſent, and Mutton, 8d. per pound Tron of 22 ounces Engliſh. At the laſt Tryſt, there was about the uſual number of cattle, ſales were briſk, and good prices obtained.

'In a former report, I made ſome remarks on the property act, more particularly as it affected the tenantry. Although a tax on unequal principles, and exacted in a peculiar way from one particular claſs of the community, while moderate, may be ſubmitted to with little complaint, yet, when of a nature to be increaſed, (and few will doubt that the one in queſtion muſt neceſſarily be increaſed year after year), it may become in time a ſevere grievance. It is therefore to be regreted, when amendments might reaſonably have been looked for, that, in the new act, the old principle of rent paid the landlord, in place of real income, is ſtill to be continued as the criterion of the tenant's means of paying the tax. By this ſingular and arbitrary mode of aſſeſſment, in contradiction to the general ſpirit of the act, although tenants may not, in every inſtance, pay more than their fair contribution; yet, from the nature of things, it muſt often happen, that they will be obliged to pay the tax without poſſeſſing the means from which alone it is expected to be derived in other claſſes. In order to put this in a ſtriking point of view, and at the ſame time as briefly as poſſible, I beg leave to ſtate a caſe that muſt often happen. A perſon aſſeſſed under Schedule D, that is, on real profits or gains, is overtaken by ſome diſaſter which renders him unable to pay the tax, at leaſt from the only ſource the act looks to for payment in his caſe, viz. clear profits or gains. From principles of juſtice, as well as from the very ſpirit of the act itſelf, if, on a proper ſtatement of the facts, his caſe is made out to the ſatisfaction of the Commiſſioners, an abatement of the whole, or part of the duty, as may be, neceſſarily follows. Place a tenant under ſimilar circumſtances, and ſurely it will not be ſaid that his crops are exempted from many accidents and numerous occurrences which will greatly deteriorate them, and no ſuch relief can be allowed him. Another caſe which muſt often preſs hard on a tenant while he is aſſeſſed according to rent:—He takes a farm in bad condition, which he however hopes to make ultimately productive, and therefore goes to work by draining, fallowing, liming, and ſo on. Under ſuch circumſtances, he cannot poſſibly derive any income or profit from the farm for ſome years, but muſt, on the contrary, be out of pocket, yet, as he pays a rent to his landlord, he muſt alſo pay a proportional property tax, which inconteſtibly muſt be derived from his capital. Moreover, in a few years, in conſequence of theſe expenſive outlays, his farm begins to make the expected returns; but he is no longer to be aſſeſſed by the old ſtandard of rent. Seven years are now elapſed; he muſt therefore, in future, be taxed by the value that may happen to be ſet on his premiſes. 'Tis pity thoſe gentlemen who ſo firmly, and ſucceſsfully reſiſted an audition to the tax on

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farm horſes, had not attentively conſidered the property act, as it applied to tenants, otherwiſe they would ſurely have made ſome attempt at amendment here; and had they not ſucceeded, it would have at leaſt afforded the ſatisfaction of making known the reaſon, why ſuch a deviation from the general principle of the act was neceſſary in regard to the tenantry.'

Eaſt-Lothian Quarterly Report.

THE operations of this quarter, with a few exceptions, were carried on ſucceſsfully; and, though hands were ſcarce, and wages uncommonly high, theſe circumſtances were in a great meaſure compenſated by the fineneſs of the weather, which permitted the cutting and ingathering of the crop to go on in the moſt rapid and huſbandman-like manner. The wheat is of great bulk; and though, in many inſtances, partially damaged by the July rains, yet, on the whole, cannot be conſidered as defective, either in quantity or quality. Barley may be reported as fully equal to an average; but the quantity ſown in the county for two or three years paſt, has been ſo much reduced as to render this article an object of but little importance to the great body of farmers. Oats were cloſe on the ground, and well headed; therefore, though not bulky, prove very productive; and the return in meal has this ſeaſon, in many inſtances, exceeded what was ever known, particularly from thoſe of the potato variety. Peas and beans are, in moſt caſes, below an average, the damage ſuſtained from a high gale of wind in the firſt week of Auguſt never having been overcome.

Markets have been fully ſupplied with new grain for ſeveral weeks, eſpecially with wheat, of which article a greater quantity has been ſold at Haddington for a month paſt than uſually happens at this ſeaſon. Prices have been much regulated by the condition of the grain; and it is a curious circumſtance, that a difference of weight, not exceeding 3 lib. per firlot, actually occaſioned a difference in price to the extent of 5s. or 6s. per boll. Indeed the farmer who intends to thraſh wheat at the end of Autumn or beginning of Winter, ought to be careful to have it ſtacked in good order, otherwiſe he neglects his own intereſt. Of oats, a ſcanty ſupply has hitherto appeared; but, as the ſeaſon advances, greater quantities will undoubtedly be preſented.

This has been a tolerable graſs ſeaſon; and the number of cattle and ſheep fed, amply ſupplied the butcher's demand. Lean cattle have brought much the ſame prices as laſt year, but ſheep are rather higher. Turnips, at one time, promiſed to be a moſt abundant crop; but a mildew lately ſeized them, by which their quality muſt be neceſſarily much impaired. The ſowing of wheat is far advanced, and hitherto has been performed under the moſt favourable circumſtances. Every exertion is making to ſow as much of this valuable grain as poſſible; and the goodneſs or badneſs of the weather at this period of the year, is, on that account, of infinite importance to the farmers of the diſtrict.—*Oct.* 25.

Account

count of WHEAT *sold in* HADDINGTON MARKET, *for ready money, from November 2d* 1804, *to October 25th* 1805; *with the Weekly, Monthly, and Annual Average Price thereof; transmitted by* Mr TODRICK, *clerk of the market.*

Date.	Quantity.	Value.			Weekly Average.			Monthly Average.		
1804.	BOLLS.	£.	s.	d.	£.	s.	d.	£.	s.	d.
Nov. 2.	865	1690	3	6	1	16	$9\frac{2}{12}$			
9.	964	1903	11	6	1	19	$5\frac{9}{12}$			
16.	593	1367	5	0	2	6	$1\frac{4}{12}$			
23.	733	1585	16	0	2	3	$3\frac{2}{12}$			
30.	443	949	0	3	2	2	$10\frac{1}{12}$			
	3598	7395	16	3				2	1	$1\frac{3}{12}$
Dec. 7.	472	1060	18	6	2	4	$11\frac{5}{12}$			
14.	345	780	10	6	2	5	$2\frac{11}{12}$			
21.	502	1078	19	0	2	2	$11\frac{9}{12}$			
28.	464	983	13	6	2	2	$4\frac{9}{12}$			
	1783	3904	1	6				2	3	$9\frac{6}{12}$
1805.										
Jan. 4.	414	859	10	0	2	1	$6\frac{3}{12}$			
11.	546	1115	14	6	2	0	$10\frac{5}{12}$			
18.	539	1089	4	6	2	0	$4\frac{9}{12}$			
25.	415	892	4	6	2	2	$11\frac{11}{12}$			
	1914	3956	13	6				2	1	$4\frac{5}{12}$
Feb. 1.	405	962	12	6	2	7	$3\frac{5}{12}$			
8.	638	1397	15	0	2	3	$9\frac{9}{12}$			
15.	570	1292	10	0	2	5	$4\frac{2}{12}$			
22.	513	1159	11	0	2	6	$2\frac{4}{12}$			
	2126	4812	8	6				2	5	$3\frac{3}{12}$
Mar. 1.	485	1111	18	0	2	5	$10\frac{2}{12}$			
8.	528	1263	16	3	2	7	$10\frac{5}{12}$			
15.	307	753	12	6	2	9	$0\frac{9}{12}$			
22.	243	603	1	6	2	9	$7\frac{7}{12}$			
29.	229	563	16	0	2	9	$2\frac{10}{12}$			
	1792	4296	4	3				2	7	$11\frac{4}{12}$
Apr. 5.	560	1372	8	0	2	9	$0\frac{2}{12}$			
12.	520	1244	11	6	2	7	$10\frac{5}{12}$			
19.	262	615	11	0	2	6	$11\frac{10}{12}$			
26.	478	1067	4	0	2	4	$7\frac{9}{12}$			
	1820	4299	14	6				2	7	$2\frac{11}{12}$

Date. 1805.	*Quantity.* BOLLS.	*Value.* £.	s.	d.	*Weekly Average.* £.	s.	d.	*Monthly Average.* £.	s.	d.
May 3.	447	946	8	6	2	2	$4\frac{2}{12}$			
10.	561	1163	5	6	2	1	$7\frac{9}{12}$			
17.	441	925	9	0	2	2	$5\frac{1}{12}$			
24.	593	1257	17	0	2	2	5			
31.	471	1007	4	6	2	2	$9\frac{3}{12}$			
	2513	5300	4	6				2	2	$2\frac{3}{12}$
June 7.	487	1049	6	0	2	3	$1\frac{1}{12}$			
14.	551	1166	8	0	2	2	4			
21.	590	1215	5	6	2	1	$4\frac{4}{12}$			
28.	524	1090	7	0	2	1	$7\frac{4}{12}$			
	2152	4521	6	6				2	2	$0\frac{3}{12}$
July 5.	350	741	14	6	2	2	$4\frac{7}{12}$			
12.	486	1078	7	0	2	4	$4\frac{6}{12}$			
19.	395	902	6	0	2	5	$8\frac{3}{12}$			
26.	285	695	6	6	2	8	$9\frac{7}{12}$			
	1516	3417	14	6				2	5	1
Aug. 2.	429	1046	16	6	2	8	$9\frac{7}{12}$			
9.	365	889	3	6	2	8	$8\frac{2}{12}$			
16.	461	1038	14	0	2	5	$0\frac{9}{12}$			
23.	387	886	7	6	2	5	$9\frac{8}{12}$			
30.	330	768	14	6	2	6	7			
	1972	4629	16	0				2	6	$11\frac{1}{12}$
Sept. 6.	464	1031	15	6	2	4	$5\frac{8}{12}$			
13.	530	1089	10	6	2	1	$1\frac{4}{12}$			
20.	764	1455	7	0	1	18	$1\frac{8}{12}$			
27.	792	1501	11	9	1	17	11			
	2550	5078	4	9				1	19	$9\frac{11}{12}$
Oct. 4.	954	1803	10	0	1	17	$9\frac{10}{12}$			
11.	928	1633	15	6	1	15	$2\frac{6}{12}$			
18.	884	1525	1	0	1	14	6			
25.	840	1463	5	9	1	14	10			
	3606	6425	12	3				1	15	7

AB-

ABSTRACT.

	Monthly Quantity.	*Monthly Produce.*			*Monthly Average.*			*Annual Average.*		
	BOLLS.	L.	s.	d.	L.	s.	d.	L.	s.	d.
ember	3598	7395	16	3	2	1	$1\frac{3}{12}$			
ember	1783	3904	1	6	2	3	$9\frac{6}{12}$			
ıary	1914	3956	13	6	2	1	$4\frac{8}{12}$			
uary	2126	4812	8	6	2	5	$3\frac{3}{12}$			
ch	1792	4296	4	3	2	7	$11\frac{4}{12}$			
il	1820	4299	14	6	2	7	$2\frac{11}{12}$			
	2513	5300	4	6	2	2	$2\frac{7}{12}$			
:	2152	4521	6	6	2	2	$0\frac{2}{12}$			
	1516	3417	14	0	2	5	1			
uſt	1972	4629	16	0	2	6	$11\frac{5}{12}$			
ember	2550	5078	4	9	1	19	$9\frac{11}{12}$			
ber	3606	6425	12	3	1	15	7			
	27342	58037	16	6				2	2	$5\frac{5}{12}$

Letter from the County of Inverneſs, October 23.

CATTLE, of late, have rather advanced in price; and the demand the drovers ſtill continues. Wedder ſheep have alſo advanced a- ten per cent. higher than laſt year, the preſent price being from to 22s. per head. Our harveſt is not yet altogether finiſhed even in ower diſtrict, and in the hills it is not half over, owing to the conti- rainy weather from the end of July to the middle of September. corn crop ſeems, however, to be a fair average, though the wheat nerally conſidered as imperfectly filled. Turnips are not ſo weighty is expected. This branch of huſbandry has of late increaſed con- ibly in the diſtrict.'

r from a Gentleman in a neighbouring Diſtrict, addreſſed to the Conductor.

AFTER leaving your houſe, we made a tour through the reſt of Lothian, and were highly gratified with the huſbandry of that ſt, which, on the whole, is equal to any thing of the kind to the extent which I have witneſſed in my ſeveral journies through the . At the ſame time, I obſerved ſome fields which did not keep with the general appearance, and attached blame to the occupiers. rage ſeems now to be a great object, and is conducted upon the oved plan of retaining a full bite, though I would like to know her the growth in the next ſpring, eſpecially on dry ſoils, is more lant than when it is eaten cloſer down.

Howeſver much the preſent age ſupports the ancient character of Eaſt ian for good farming, it ſeems little improved in the art of road- ng. If the diſtreſs of travellers were particularly ſtudied, it could e more effectually attained than in the mode adopted in repairing oads, both eaſtward and weſtward of Dunbar, where expence ſeems increaſed for no other purpoſe than fruſtrating the intention of ig roads. If, in place of ſpreading unequal-ſized ſtones to the

deepneſs of ſix or eight inches, as is preſently done to the great annoyance of every paſſenger, the roads were ſcraped bare, and a ſlight covering of materials ſufficiently broken were applied, they would, from the firſt, prove not only more comfortable, but likewiſe freer of ruts and dimples afterwards, than when repaired according to the actual ſyſtem; whilſt one half of the expence would be ſaved in the firſt inſtance, and funds left for going oftener over them. The road through Tyningham wood ſeems to be repairing on the ſame erroneous principle, of laying a large quantity of materials on at once, than which nothing can be worſe judged; and, with your permiſſion, I mean, on a future occaſion, to offer a few hints on the art of road-making; an art much improved in many diſtricts, but which ſeems to be taking a retrograde courſe in the one alluded to.'

Letter from a Gentleman near Langholm, October 23.

'THE autumn quarter has in general been favourable to the views of the farmer. The agreeable mixture of ſunſhine and ſhowers, during the month of Auguſt and beginning of September, was highly propitious to the nouriſhment of grain, both in the plant and in the ear. We had however ſome heavy rains during the firſt weeks of September, after the corn was begun to be cut, which made things for ſome time have a very unpromiſing appearance. From the 20th of that month, we have had moſtly fine dry weather; and the crops were never better got in, and in ſo ſhort a period.

'Harveſt was generally finiſhed here about three weeks ago. The crop may be rated, I think, rather higher than an average one. Barley, in particular, is weighty, and of much better quality than laſt year's. Oats, not lodged by the rains, turned out a good crop. Peas have too much run to ſtraw, and are not well filled. Potatoes are plentiful, and of a fine quality. Turnips may be ſtated as a fair crop, though not ſo weighty as we have ſeen them ſome years. Many of thoſe firſt ſown appear to be unſound at the heart; but perhaps this is always the caſe with thoſe ſown too early in the ſeaſon. Wheat is ſcarce ever attempted to be raiſed here, the ſoil being of too light and looſe a contexture for raiſing that valuable grain.

'The ſheep markets have advanced conſiderably ſince laſt ſeaſon. Wool ſells about 5s. per ſtone above laſt year's price. Current price from 25s. to 31s. 6d. per ſtone. The fair eſtabliſhed at Langholm this ſeaſon for draught ewes on the 18th of September, was not ſo well attended as could have been wiſhed; owing perhaps to the heavy rains, about that period, preventing the farmers from having their ſheep aſſorted and brought forward to the market, and the too ſhort notice given to the Engliſh dealers. The prices of thoſe ſold were ſomewhat higher than laſt year's, being from 16s. to 18s. and 20s. a piece. There is a briſk demand for black cattle; and long prices are given for beaſts of good ſhape and ſize.'

Weſt Stirlingſhire Quarterly Report.

DURING this quarter, the weather has varied from one extreme to another. The rains began about the end of July, and continued with little intermiſſion till the equinox, when the weather ſuddenly improved; ſince

ſince which we have had the moſt favourable ſeaſon ever remembered. The genial heat which prevailed favoured the ripening of the corns in the more elevated diſtricts; and the almoſt inceſſant rains in the beginning of harveſt, prevented for ſome time the corns in the lower diſtricts, though ready for the ſickle, from being cut down. As the crop was, from theſe cauſes, every where ripe at once, the demand for ſhearers to expedite the harveſt was uncommonly great, and the wages offered were ſo high, as to tempt the ſickly inmates of manufactories to ſhare the toilſome, though healthy, labours of the huſbandman. Harveſt was partially begun in the end of Auguſt, and was generally and favourably concluded by the middle of October.

Every kind of crop has proved uncommonly abundant. Bigg by itſelf, or blended with barley (the common practice in this diſtrict), has yielded more than an average crop. A great demand was raiſed, from the diſtilleries commencing their operations earlier this ſeaſon than formerly; and as laſt year's ſtock was exhauſted, whatever quantities of this year's produce were thraſhed, found a ready ſale at from 28s. to 35s. per boll in the ſmall diſtilleries in the northern parts of the county. Since harveſt has been finiſhed, the markets have been more abundantly ſupplied, and prices have rather begun to decline: but, as yet, there ſeems no reaſon to apprehend any rapid or conſiderable depreſſion. Oats, the ſtaple grain in this diſtrict, are the weightieſt crop, in point of corn and ſtraw, that has been remembered for many years. So completely, however, were the markets emptied of oat-meal before harveſt, that the produce of this year ſtill continues to ſell at the high price of 24s. per boll, and the meal at 1s. 7d. per peck. Potatoes, which, during the firſt two weeks of harveſt, were almoſt the only food of the manufacturing claſſes, are every where prolific and excellent. Turnips, now beginning to gain a footing, when well dunged and hoed, promiſe abundance of winter keep.

The produce of the dairy, being rather ſcanty this ſeaſon, fetches good prices. Butter, ſalted, ſells at 20s.; Common Cheeſe at 7s., and Sweet Milk Cheeſe at 10s., per ſtone, tron weight. Milch cows, from the deficiency of paſturage, occaſioned by the long and ſevere drought of ſummer, ſtill ſell at reduced prices. Black cattle, in all the recent markets, have met with a ready ſale; and fat cattle are gradually advancing in value; whence it ſeems reaſonable to conclude, that they will ſell at from 5 to 10 per cent. higher in the preſent, than in the preceding ſeaſon.——*Oct.* 24.

Letter from Upper Annandale, Oct. 25.

'The harveſt for ſown hay was excellent, and moſt of it was put up without any rain. It was otherwiſe with moſt of the meadow-hay, which was later than ordinary, and met with a good deal of wet weather in making it up. The early part of the harveſt for grain, ſeemed to threaten diſaſtrous effects; but the weather became fine before any ſerious damage was done, and has continued good ever ſince, with the exception of a day or two of rain. It was neceſſary to open out ſome of the earlieſt cut grains, and perhaps a part may have been hurried into ſtack too ſoon; but, in general, the crop has been ſafely got in, and bulks well.

'Thraſhed barley hardly anſwers the expectations formed of it when in the ground. Strong oats were laid down by the rains, and the grains are not very well filled; but ſuch as ſtood well, are better bodied. Potatoes are an abundant crop, of excellent quality, and finely got in. Peas were a decent crop, and not late, but ſuffered in cutting and drying. Wheat has anſwered well, and the extent of ground ſown is increaſing rapidly. Turnips are an equal and a good crop. Flax was never worſe in this country. Second clovers were abundant, and part of them has been made into hay, and got well up into ſtack, with layers of barley ſtraw, or without them. Markets for grain have declined a little; and thoſe for cattle have rather advanced of late. There is little demand for hay. Land rents, of all kinds of farms, are ſtill advancing.'

Selkirkſhire Quarterly Report.

THE firſt three weeks of September proved very wet, eſpecially in the *head lands;* yet little damage was ſuſtained, as the weather, ever ſince, hath been extremely propitious for every ſpecies of labour; hence, harveſt work was got finiſhed in the beſt ſtyle poſſible; and a heavy crop, and fair price, ſeem to crown, with abundant ſucceſs, the labour of the huſbandman. Oats are a fine crop. Turnips look exceedingly well, and potatoes are plenty. Bear and barley are in a great meaſure ſupplanted by potato oats, which, on ſtrong land, are found to yield a great increaſe. The price of labour ſtill keeps high, and rather on the advance. The general run of day-labourers, through the ſummer, hath been from 2s. to 2s. 6d. Sheep and lambs have obtained a conſiderable advance on laſt year's prices; draught ewes are from 19s. to 20s. Hill paſture looks well, and ſheep are very good. The wool trade hath been briſk, and higher prices than ever known have been got.——*Oct.* 25.

Wigtonſhire Quarterly Report.

OF wheat, which is called the king of grains, little is ſown in this county. An idea prevails, that our climate is too moiſt, not only preventing the proper preparation of the ſoil, but alſo injuring the quality of the grain. This opinion may in time become antiquated, and furniſh another inſtance of the danger of haſty concluſions, when not founded on ſufficient experience.

The three firſt weeks of September gave us many broken days in the operations of harveſt, being inconſtant and ſhowery; but the weather becoming more favourable, all has been ſecured in good time. Perhaps few crops ever ſuſtained leſs injury during the harveſt ſeaſon than the preſent. In general, the bulk is greater than uſual; but the quality of the oats (and that is our chief dependence) is not equal to thoſe of the two laſt years. Such as have tried, ſay that the buſhel of oats weighs two or three pounds leſs this year than it did the laſt, and of courſe does not meal in proportion to what we hear of the eaſtern counties.'

Little barley is raiſed in this county, big or bear being ſubſtituted for it, the latter variety being hitherto looked on as better adapted to our variable climate and imperfect culture. The ſowing of bear uſed to be pretty extenſive before 1803; but the crop of that year being al-

moſt unſaleable, for reaſons that have been publicly explained, potato oats have been extenſively ſown inſtead of it, this latter grain being deſervedly conſidered as a capital acquiſition. Laſt year's prices of bear having given a little encouragement, ſome good fields of this crop were viſible this year, and it is ſaid a few ſales have already been made at 50s. and 52s. 6d. per boll, of 12 buſhels Wincheſter.

Paſtures have kept good during the preſent quarter. Of fat cattle, few are to be found in this county, our diſtance from a certain market being very conſiderable. Young cattle, and lean ſtock, have not met with much fluctuation for ſome time; and though it cannot be ſaid that prices have advanced, buyers pretending a little ſhyneſs; yet farmers and graziers are not begun to ſhew diſpoſitions of lowering their demands.——*Oct.* 25.

Angusſhire Quarterly Report.

The dry weather of July was ſucceeded in the beginning of Auguſt by daily rains, which, though not very heavy, retarded the hay harveſt, and were rather unfriendly to that part of the crop intended for ſeed, as there was little, if any of it, got into proper preſervation when the rains ſet in. After ſeveral weeks of unſettled weather, an excellent harveſt ſeaſon was obtained, and the grain crops have proved ſo abundant, as may well excite and deſerve the gratitude of the owners. Barley is of excellent quality, but thought rather inferior to an average in ſome places. No rotting rains, nor ſhaking winds, nor blaſting mill-dews, &c.; but there is a talk of ſome black among the wheat; which, however, is not a ſtaple, but a ſubſidiary article. This grain has been cultivated, on a narrow ſcale, for ſome years back, with conſiderable advantage to the county; and ſome of the firſt ſown wheats of this harveſt, buſh and ſhow remarkably well. Froſt has hardly appeared till the morning of Friday the 4th inſt., when a heavy hoar froſt fell, with ice on ſhallow dubs ¼ inch thick: it did not return next day, but was followed by a conſiderable fall of rain on the 9th. On the whole, it may be ſaid of the harveſt, as was ſaid of a gallant 74 ſlipping into the water from the ſtocks;—it has gone off in a grand ſtyle; and, in the courſe of it, ſome ſpecimens of management have occurred, not unworthy the attention of the curious.

Markets, through the harveſt, have been rather dull than low-priced. At the Hill-Market of Kirriemuir, on Wedneſday laſt, a great ſpread of cattle, but no *far-off* dealers, and therefore little ſale, which is of the leſs conſequence, as farmers are well provided with winter food for keep.——*Oct.* 25.

Berwickſhire Quarterly Report.

Our harveſt has been favoured with a tract of moſt excellent weather. Reaping commenced about the 26th of Auguſt, being fully ten days earlier than appearances at the beginning of this quarter led us to expect; but, from the rapidity with which the corn came forward, a ſufficiency of hands could not be procured for cutting it down with requiſite deſpatch; yet, though we have ſeldom witneſſed ſuch a breadth of ripe corn at riſk, as our fields exhibited on the ſecond

week of September, there has been no material loſs from ſhaking. Moſt of the grain in the low diſtrict was carried by the firſt of October; and crops of every kind were probably never ſecured in better condition.

Reapers engaged for the whole harveſt, had from 2s. 2d. to 2s. 4d. per day with victuals; but, in the weekly market, the wages advanced with the increaſing demand, firſt to 2s. 8d., and the week following, to to 3s. per day.

Wheat is an abundant crop; and, if we except a few caſes, where over-luxuriance may have prevailed, the quality is good. Barley, which ſtill continues to be cultivated on a circumſcribed ſcale, is alſo good in quality, and may be reckoned an average crop per acre. Oats are a fine ſample, and meal well; but the produce will be rather middling; for though the bulk was great upon ſoft moiſt ſoils, there was a conſiderable deficiency upon the cold clays, and droughty gravels. The pea crop is good; and beans are rather above mediocrity.

Turnips have been nearly at a ſtand for theſe two months paſt, and are much infected with mildew in conſequence of the intenſe drought; yet, from the extended breadth of ground which they occupy, and the general fulneſs of plants, their aggregate weight may probably fall little ſhort of a medium crop.

Draught ewes have ſold from 14 to 20 per cent. above the rates of laſt year; but there has been little demand for ſtore cattle ſince the commencement of this quarter. Fat markets have remained pretty ſteady.

The potato crop, which is about half gathered, proves very prolific, and fine in quality. Young clovers have but a diminutive aſpect; and paſtures have done very little ſince Lammas.

New wheat ſold for a few weeks as high as 53s. and 54s.; but declined with the fall in the London market. Prices at Berwick, October 19th—Wheat 42s. to 45s.; Barley 28s. to 29s.; and Oats 21s. to 24s. per boll of ſix buſhels.——*Oct.* 26.

Dumfrieſſhire Quarterly Report.

The laſt ſummer, throughout, promiſed abundance of farm produce, and, now that the harveſt is concluded, there appears to be little diſappointment. The hay, for the firſt crop, was rather better than an average; and, where ſecond crops have been taken, they have been well got. Muirland, or bog hay, has not been weighty, nor equal to our ordinary growth.

Corns of all kinds appear to have been well filled; yet, when ſtacked, do not ſeem to give more than ordinary bulk. Thoſe not cut early in September, were much broken down by heavy falls of rain, attended with high winds, which ſeemed to have in ſome degree prematurely ripened the grain. The wheat and barleys which were cut early, ſuſtained ſome loſs by the rainy and cloſe weather in the beginning of September, but not to any conſiderable extent. After the middle of the month, the weather became dry, and continued ſo till the harveſt was concluded in the moſt ſatisfactory manner. So far, however, as wheat and barley have been thraſhed, they appear to be no more than

an ordinary crop; and oats may be considered in the same light. Turnips are inferior to last year's growth, but cannot be called a bad crop. Potatoes are abundant, and of good quality, and are now all stored; and a very general sowing of wheat has begun upon the potato land. How far this will prove advantageous to the farmer in the end, is very doubtful. It would seem to be more than the light lands of Dumfriesshire can well bear; yet the present return is so great a temptation, that the practice will probably continue, at least, for some time. No other occupation of the ground, for two years, once laboured and manured, is known to give so high a return as potatoes and wheat. In many situations, of late years, the value of these two crops have far exceeded that of the ground-right of the land.

Cattle of all kinds improved well through the summer and harvest months, yet have left the farmer but a very moderate return for the year's keeping, and not so much in general as he would require in the present times of high rents, and excessive expence of management. Cattle are no doubt less subject to this last than corn; yet, in the now improved manner of keeping cattle upon green crops and laid down pastures, a considerable part of the expence of farm management must justly be laid upon them; and, in that view, it is not the yearly return of former times that will pay for them. In general, it is reckoned that the cattle farmers of this county have, for the last year, been scrimply indemnified for their outgivings. The sheep farmer has been better paid. The increase in the price of wool has done much for him; and even the carcase has sold at an advanced price, when that of the bullock did not exceed the rate of last year. This is not very accountable, as the same run of good seasons, which have so much multiplied the quantity of animal food over all the kingdom, must have done so still more as to sheep than cattle.——*Oct.* 26.

Aberdeenshire Quarterly Report.

After the date of last report, the rains set in so heavy, and continued, with short intervals, so long, that great fears were entertained for the safety of the crop. About the 10th of September, the rains went off, and dry weather succeeded; which has continued, with little more than the interval of one week, ever since. The harvest, therefore, which was retarded a little in the beginning, has exceeded our most sanguine expectations in despatch and celerity. The whole is cut down, and mostly ingathered, in the best order; and the bulk in the stack-yards is uncommonly great. The peas are small grain; and bear, on the whole, will be rather inferior to the growth of the last two years. Both potatoes and turnips are abundant crops. The demand for cattle has been moderately quick, and prices have been much the same as last year.

Improvements go on here with the same spirit and vigour as for many years past. Small patches of wheat are beginning to be cultivated more generally than formerly; but an insuperable bar to the extension of the culture of this grain to any extent in this county, is the great proportion of bad land to good, upon almost every farm. From this cause, it is impossible, by all the ingenuity of man, to find manure to extend the wheat culture widely, without injuring, or totally neglecting, the inferior soils, which, by diminishing the quantity of pasture grass, and

curtailing the maintenance of ſtock, would give a ſevere wound to one of the firſt objects of improvement in this diſtrict.——*Oct.* 28.

Roſsſhire Quarterly Report.

SINCE laſt report, we have had a continuation of changeable weather, which has never gone to extremes of either very bad or very good; at the ſame time, was unfavourable, during ſo important a part of the ſeaſon. The harveſt has of courſe been tedious, and attended with many of the diſagreeable circumſtances of a late ſeaſon. In the months of Auguſt and September, we had much wet weather, with little ſunſhine, which, being the ripening ſeaſon with us, has rendered the quality of all grains inferior to that of laſt year's, and probably will leſſen the quantity of marketable produce conſiderably. The chaff of the wheats, during the ſoft weather in Auguſt, was thickly covered with a dark-coloured gum; and the ears being likewiſe attacked with the red ruſt, the quality of that grain is reduced much below mediocrity. I do not ſuppoſe oats and barley have ſuffered ſo much; but theſe cannot be expected to be ſo fair in colour as laſt year's crop. The greateſt recommendation for the marketing of our crop is, that the wheat is almoſt entirely free of ſmut. The whole crop is alſo free of ſprouting; and I have not heard of any ſtacks being turned for heating. There is ſtill ſome corn in the fields. Potatoes are an abundant crop, of good quality, and are juſt now getting out of the ground. Turnips made great progreſs during the month of Auguſt, and are uniformly a good crop, where the land was well prepared, and the culture of them properly attended to. That, however, can only be ſaid of about one half of the turnips attempted to be raiſed in this county. Several fields of wheat have been got ſown in excellent order. The cattle trade has been dull during the quarter. At Beauly Michaelmas market, there was a larger ſhow than uſual: A good many were ſold, but at a reduction of price from what was given in the month of July. As yet, there is nothing doing in the corn trade; ſo cannot report any thing on that head.——*Oct.* 28.

Letter from Glaſgow, 29th October.

'THE weather, at the beginning of harveſt, was very unfavourable, which tended conſiderably to raiſe our corn markets; but having ſince continued good, our different crops were ſecured in the fineſt condition, which, with the large importation of wheat, has lowered the price of that grain to the annexed quotation.

'Our wheat crop is very abundant, but rather inferior to laſt year's. Oats are turning out very indifferently, not mealing nearly ſo well as laſt crop. Barley is coarſe and *bold in the hand*, though there was but little ſown laſt ſeaſon in this neighbourhood. We have a great crop of potatoes, and the quality excellent.

'Our ſupply of grain has been chiefly from London and Newcaſtle, and conſiſts moſtly of foreign wheat, the quantity, we ſuppoſe, not leſs than 10,000 bolls; but, as the importation of oats, beans, &c. has of late been but trifling, our market is at preſent bare of every kind of grain, wheat excepted; but as it is believed that exportation will be allowable from Ireland by the 10th of next month, a free ſupply of oats

may ſhortly be looked for from that quarter. Barley may be expected, as uſual, from England and the north of Scotland, in conſiderable quantities.

'State of Glaſgow Markets, October 29.

Dantzic Wheat	40s. to 42s.	per boll Linlithgowſhire meaſure.
Scotch ditto (old)	42s. — 46s.	
——— ditto (new)	34s. — 42s.	
——— Barley, ditto	30s. — 34s.	per boll Stirlingſhire meaſure.
Engliſh ditto, ditto	35s. — 37s.	
Scotch Beans (old)	24s. — 27s.	
——— Peas, ditto	22s. — 23s.	
——— Oats, ditto	22s. — 24s.	
Engliſh ditto (new)	24s. — 28s.	
Iriſh ditto (old)	25s. — 26s.	per 264 lib.
New Oat Meal	23s. — 24s.	per 140 ditto.
Old ditto, ditto	22s. — 23s.	ditto, ditto.'

ENGLAND.

Norfolk Quarterly Report.

THIS diſtrict has been favoured with a more abundant crop than perhaps the oldeſt agriculturiſt remembers; and the quality of the grain is better than a large bulk of ſtraw uſually produces. Wheats will average about 60 lib. per Wincheſter buſhel, and barleys a proportional weight. The harveſt, owing to the backward ripening of the corn, and the vaſt number of loads to be carried, was extended to an unuſual length, yet has been finiſhed in a ſuperior ſtyle. A good deal of the early carried grain proves to be damp, and muſt be kept in the barn or ſtack till the ſpring months; though what was houſed in the latter part of autumn, when the weather was favourable, is in excellent condition, and fit for any market. Preſent prices are—Wheat, 60s. to 64s.; Barley, 30s. to 32s.; Oats, 24s. to 28s.; Grey Peas, 36s. to 38s.; all per quarter of eight Wincheſter buſhels.

The turnip crop, which, after the firſt and ſecond hoeings, wore a moſt promiſing appearance, has of late ſuffered every where from the ſeverity of the drought, and, in many inſtances, from the *black canker*. The crop of vetches, both of the winter and ſummer ſpecies, proved excellent; and artificial graſſes have planted in a moſt luxuriant manner. Wheat ſeed is only partially begun; but the late fine rains will now allow the immediate breaking up of the *ollands* (*vide* Mr Young's Survey), and the work will go briſkly forward. Wool and Stock lambs have obtained great prices, as have all kinds of good ſtock, at the late fairs.——*Oct.* 21.

Letter from a Yorkſhire Farmer, October 21.

'I HAVE the pleaſure to inform you, that our harveſt is completed in the moſt favourable manner, and that every deſcription of grain is properly ſecured. Our wheats are the beſt ever experienced, both in quantity and quality, yielding abundantly under the flail. Barleys are much inferior in quality to laſt year, being in general coarſer in the ſkin, and lighter; but the quantity in meaſure will amount to a f

crop. Beans are alſo good, well podded, and finely cured. The Oats is the worſt crop; but not much of this grain has been thraſhed: what I have ſeen, are not fine, nor ſo full of meal, as the produce of 1804. Potatoes are an abundant crop, and the quality ſuperior to any former period. Turnips have ſuffered much by the dry ſeaſon; many fields, and *patches* in moſt fields, being at this time in a dying ſtate, and cannot ſtand the winter. The diſeaſe is at the root, and thought to be produced by a grub, or worm; but, in examining them, I find nothing but ſpecks and cracks where they begin to decay; and when the froſt ſets in, all thoſe ſo affected muſt rot. This will make a material difference in the quantity of this moſt neceſſary and uſeful winter food, which, in Auguſt, was thought to be the moſt promiſing ever known. The ſeaſon ſtill continues ſo very dry, that many farmers have not yet ſown any wheat, the high lands being conſidered in too dry a ſtate; and much of the ſtrong corn ſtubbles cannot be ploughed. Our markets are upon the decline for every kind of grain. The new wheats are ſo very fine, that the old ſtale grain is totally unſaleable; and our importers having conſiderable quantities on hand, will ſuffer a heavy loſs.'

Letter from a Gentleman in Wiltſhire, 24th October.

'THE harveſt, though it began late, was finiſhed as early as uſual. The greater part was ſecured by the 10th October, and ſtill earlier in Dorſetſhire, Somerſetſhire, and the ſouthern coaſt of Devon; and the crop has turned out fully as good as was expected. The wheat harveſt began nearly at the ſame time, not only in the weſtern counties, but in a very conſiderable part of the kingdom; but, unfortunately, the weather was very untoward for the firſt fortnight, though ſeldom two days were wet together. The conſequence was, that a very conſiderable proportion of the wheat was carried in ſo damp a ſtate, that a great deal of it will not be fit for uſe till March. Luckily, however, the rains were of infinite ſervice in preventing the blight, with which the air was heavily loaded, from doing any ſerious injury.

'As ſo much of the wheat cannot be thraſhed, and the demand for ſeed has been urgent, the markets have been thin, and the prices have kept up. The demand for good wheat has alſo been great among the millers, who had bought inferior corn, and wanted good new wheat to mix with it; and they found their advantage, in the price not being too much reduced.

'The barley crop was much beyond an average, and in general well houſed; but very little of it has been thraſhed as yet; and as the maltſters, who have ſtocks of old malt, have no intereſt in reducing the price, it ſtill continues high. The great quantity of after-graſs, and the favourableneſs of the weather to eat it, have made it unneceſſary to ſend cattle to the ſtraw-yards. There has conſequently been as yet no urgency for thraſhing barley for the ſake of fodder. The demand for malt is likely, however, to be very great, as the ſtocks of beer are low, and much barley will be wanted.

'It ſeems therefore probable, that the ſupply either of wheat or barley will not be much greater than the demand for ſome weeks to come, and, of courſe, that the prices, notwithſtanding the great crops both, will not ſink very rapidly.

'The crop of oats, in the weſtern and midland counties, has been generally bad. The price is already conſiderably advanced, and ſtill more likely to be higher than lower.

'Beans have turned out much better than was expected, and are, upon the whole, a fair average crop.'

'Store ſheep and lambs have ſold rather higher than laſt year, in conſequence of the general proſpect of winter food. The hay crop, indeed, was not great; but the after-graſs has not been ſo abundant, nor ſo healthy, for many years. Some of the early turnips are gone off; but thoſe intended for ſpring feed, both Engliſh and Swediſh, are good and abundant.

'Fat cattle, notwithſtanding the dearneſs of lean ſtock, have advanced very little in price.

'The quantity of cheeſe made in the laſt year has been conſiderably above an average, and prices are on the decline.

'On the whole, the year 1805, notwithſtanding the blights that prevailed during the ſpring and ſummer months, and the untoward ſtate of the weather during the hay and wheat harveſt, has been the moſt abundant in corn and graſs of any ſince the year 1794. Even the heavy rains of July, which threatened ruin to the wheat, were the ſalvation of the crop, and materially improved the barley, oats, and beans.

'Prices of grain at Warminſter, Saturday, October 19.

Wheat - - - -	64s. to 90s.	Oats - - - - -	32s. to 34s.
Barley - - - -	43s. — 51s.	Beans - - - -	62s. — 64s.

Oct. 24.

Letter from Lincolnſhire, Oct. 24.

'Our Lincolnſhire crops are very good, and the markets are rather falling; very little or no mildew is on wheat, but all that variety of grain is very good, and the weight about 62 lib. per buſhel.

'Land rent is getting very high in general, except what belongs to large proprietors, who make it a rule to have their eſtates valued only once in each generation, which is the caſe with my two employers, Lord Forteſcue and Sir Joſeph Banks. The latter thinks very much of your publication, and ſays it is the beſt he ever met with on practical agriculture. One reaſon of the rents being raiſed ſo much, is the great prices given for our fen-land; at the laſt ſale of which, this week, ſome of it went to 53l. or 60l. per acre.

'Our corn crops, in general, are very large, and are well harveſted.

	Wheat.	Barley.	Oats.	Rye about
Prices at Louth,	60s. to 72s.	36s. to 42s.	21s. to 25s.	60s. to 64s.
Lincoln,	70s. to 84s.	42s. to 44s.	22s. to 26s.	— —

'Theſe two markets are at the extremes of the county, and ſo may furniſh an average of the whole. The London markets for Beef and Mutton being lower than laſt year, of courſe Lean Cattle ſell at leſs price; Beef here from 6s. to 7s. per ſtone of 14 lib., Mutton 6d. and 7d. per lib.

'His Majeſty's ſale of Spaniſh ſheep, which Sir Joſeph Banks has the direction of, nearly half Rams, and half Ewes, brought 30l. 4s. on average; the higheſt priced Rams 58l. and 67l. each. The number was 38, and raiſed 1148l. 4s.; they are of the Merino breed.

'Wages are getting very high with us; in harveſt, 24s. per week was paid to a labourer with all his victuals; and, in ſome caſes, they were higher.'

Letter from a Farmer in Wales, Oct. 24.

'In this quarter, the corn was all in by the 20th of September; and the harveſt ended better than we at one time expected, having, in the middle of it, had a fortnight of very unſettled weather, when ſome of the barley was diſcoloured; but, as the air was cool, it ſuſtained no other damage; and moſt of the wheat was got in before the rain. I have often ſeen a greater bulk of ſtraw; but the quality of the grain is good. The wheat yields well, and holds its weight; and what oats I have ſeen for ſale are good. Peas and Beans had the appearance of a great increaſe; but I have not heard of any being thraſhed as yet. On the whole, we may ſay we have a ſaving crop. One thing, however, muſt be noticed, we have no old ſtock on hand, and were obliged to fall on the new as ſoon as it could be got into the barn; therefore, Wheat ſtill keeps up in price, but, as ſoon as we have done ſowing, we look for a drop. Seed wheat is now as high as 35s. and 36s. our buſhel, or about 14s. 3d. the Wincheſter buſhel; and our millers are giving from 30s. to 34s. for 168 pounds, and the maltſters from 40s. to 42s. per quarter for barley. Turnips are a good crop wherever they have been properly hoed; they ſeem to gain ground faſt in this part, there being a greater breadth of land under this root than ever witneſſed before. Potatoes are in great plenty. We have had but little demand of late for cattle, yet the price keeps up. The rains, in harveſt, brought on a great fluſh of graſs, which ſtill holds good; and the weather of late has been very favourable. We never had a finer ſeed-time; and there will be a great breadth of wheat ſown this year, if it holds for a week or nine days longer.'

Letter from a Gentleman in Eſſex, Oct. 25.

'We have not, this Michaelmas quarter, the unpleaſant taſk of reverberating in your ears, the blight of corn and failure of crops; but, ſo favourably has Providence ſmiled upon us in regard to the moſt important grain, that our barns are once more filled with plenty. But it muſt not be thought the farmer is now diſincumbered, and placed in a ſtate of eaſe and independence. No! Never was money more ſcarce amongſt the generality of them; for, what with high rents, taxes of every deſcription, and, above all, the general blight of laſt year, it is with the greateſt difficulty many are able to pay their rents, tythes, rates and taxes; and ſome are totally unable.

'Our harveſt, upon the whole, was favourable for houſing the grain, the latter part much the fineſt; and thoſe who, fearing ſeed-time and harveſt might fail, cut it in that green ſtate, which is not only injurious to the corn, but much retards the thraſhing, as the ſtraw and grain are in great diſtreſs. Some have paid as high as 9s. per quarter for thraſhing wheat, where labour is in the barn about 2s. *per diem*. The average weight is about 58 lib. per buſhel, Wincheſter meaſure. Oats, Peas, and Beans, were generally good. Barley will be much *mow-burnt*, owing to the hurry in which it was carted. Hops are the worſt crop ever known. The duty has, in years of plenty, ariſen to 200,000l.

This year, it is computed at about 25,000l. Many growers never pick-ed a hop. Lean ſtock keep up their price, owing to the plenty of feed. Store Ewes are dear. Pigs rather cheaper. Fat cattle are moderate in price; for the want of money is the general complaint. Our markets for grain are much the ſame as thoſe of Marklane.'

Yorkſhire Quarterly Report.

The harveſting buſineſs of the preſent autumn has had, in the main, every advantage which could be derived from a moſt favourable ſtate of the weather, in ſecuring one of the beſt crops of Wheat and Barley that has been known for many years. Yet much grain has been ſtacked in rather too damp a condition, from the diſtruſt, occaſioned by the precarioufneſs of the more early period of the harveſt.

It appears that Oats and Beans are not ſo good as laſt year; yet not much inferior to a fair average product. From the apparent backwardneſs of the grain during the ſummer, many preſages were made of an uncommonly *late* harveſt: the event has been favourable in that reſpect; ſo much ſo, that even in the moſt bleak ſituations, moor farms, &c. Oats, and other produce, have been generally well ſaved.

Potatoes are a bountiful crop, and ſelling low. Beſt Wheat 10s. 6d.; Barley 6s.; Oats 4s.; Beans 7s.; Rye 6s. per buſhel of Wincheſter.

Fruit of all ſorts has been ſcarce—much injured by the May froſts; and the little that eſcaped that inevitable ſcourge, has been devoured by myriads of waſps, which ſwarmed in all quarters like one of the plagues of Egypt. Even apples are ſcarce and dear, yet ſome orchards yielded well.

The ſummer fallows have generally been well prepared; indeed, any inſtance to the contrary, would have been a moſt culpable neglect, under ſuch favourable circumſtances. Turnips promiſed to be a full crop till of late, when ſome appearance of injury at the root from grubs, worms, &c. together with the want of the neceſſary ſupply of rain during the autumn, have cauſed ſuch a reverſe, that perhaps leſs than half the uſual food for cattle and ſheep can only be derived from them. The prices, of courſe, vary from 1l. to 5l. per acre, to be eaten on the ſoil by ſheep.

The wheat ſowing is unuſually protracted; many cultivators think it neceſſary to wait for rain, even for their fallows; and the clover leas are too hard for the plough: very little, indeed, has been ſown; but, as rain is now coming on, they will probably ſoon be buſy.

The young clovers and ſeeds have a good appearance. The aftergraſs on the meadows is not plentiful; clover ſeed is not expected to be good or abundant.

Lean Cattle, Sheep, and Pigs, are ſelling at good prices. The demand for fat cattle is rather ſlack. Hay 4l. per ton; Beef, Pork, and Veal, 7d. per lb.; Mutton 6d.; Butter 1s. 4d. Avoirdupois.

Taxes, wages of labour, and every ſpecies of outpayment, from the corn farmers, 'have increaſed, are increaſing, and ought to be diminiſhed!' The heavy and impolitic impoſts upon malt in particular, have created a curſed and unwholeſome beverage of a ſort of *ſoi-diſant* beer, ale, or porter, more properly hogs' waſh, made of any thing but malt and hops; by which all the hardworking farmers, and good people of England, in general, are in danger of being *poiſoned.*

Letter from a Gentleman near Canterbury, Oct. 27.

'Our harveſt commenced *backward*, but, from the very fine weather afterwards experienced, was got up in moſt excellent order, where proper field room was allowed; and I am happy in ſaying, we reaped moſt excellent crops of all kinds. From the quantity of rain we have had ſince Old Michaelmas, our wheats, on ſound lands, will go on well; but little is yet ſown, as we ſeldom begin till about this time, from the change of ſervants, &c. that, with us, takes place at this quarter; and, indeed, from this time till the middle of November, is here called the beſt ſeaſon; as earlier ſown, on good lands and in heart, is apt to be winter proud. Our markets are as under:

'Wheat 60s. to 76s.; Rye 36s. to 40s.; Barley 36s. to 38s.; Oats 28s. to 35s.; Beans 48s. to 52s.; Tick do. 52s. to 55s.'

Northumberland Quarterly Report.

Since laſt report, the weather has been uncommonly favourable; and the harveſt, which was expected to be late, proved earlier than generally happens. Every ſpecies of corn was nearly ripe about the ſame time, which cauſed the work to be hurried; but the fine weather continuing through September, without any high winds or rain, no evil was ſuſtained, and the crop was got in with little more trouble and expence than the firſt reaping, and never in dryer or better condition. The ſummer fallows were well wrought, the fine rains, about the middle of October, having put them in excellent condition for the ſeed; the wheats ſown on them, as well as on the bean ſtubbles, were never depoſited in better tilth.

Though the weather has been ſo favourable for harveſt work, and wheat ſowing, it has been detrimental to the turnip crop, upon dry lands; and a greater extent of turnips and ruta baga, upon thoſe ſoils, was never known, in no ſeaſon, to have ſuffered ſo much from mildew as the preſent one. On the ſtrong loams they are not ſo much affected; but the cabbages, upon thoſe ſoils, have ſuffered, and are much ſtinted in their growth.

The wheat crop is, on almoſt every ſpecies of ſoil, exceedingly bulky; and ſome ſamples of autumn ſown wheat are very good; but ſeveral crops were infected by the ruſt on the ſtraw, eſpecially the ſpring ſown ones, which has made the grain ſmall and ſhrivelled. In the county of Durham, this diſeaſe has been more general than here; and ſeveral of the ſamples are alſo unſound; but, notwithſtanding theſe deficiencies, the wheat crop may be fairly eſtimated at a full average. Of other kinds of grain, oats are in general good, and may be taken at an average; barley ſomething under.

Turnips, in the beginning of Auguſt, had the appearance of being uncommonly good; but having been attacked in ſo extenſive a manner by the mildew, a leſs produce will be got than what was expected. The preſent prices are from 6l. to 7l. an acre, to be eaten with ſheep.

The prices of cattle remain much the ſame; but ſheep have advanced ſince laſt year. Draught ewes of the long-wooled kind, were ſold, at St Ninian's fair, for 5s. or 6s. a head more than laſt year.——*Oct.* 29.

Letter from London, Oct. 29.

'In my laſt, I had to adviſe you of a recent advance in moſt artiles of grain; but in the courſe of three weeks from that time, prices exerienced a conſiderable declenſion, owing to the general good accounts f the growing crops, and the appearance of favourable weather for the arveſt. The bulk of wheat on the ground was conſiderable; and the roduce, ſo far as it has been hitherto tried, is good; the grain being f fine plump quality. The only new Engliſh wheat, of any conſequence, yet produced, has been from Kent and Eſſex; the weight of hich, on an average, may be conſidered 60 lib. per buſhel, and fine amples 62 lib.

'With regard to the general crop of wheat in England, opinions ſeem t variance; but from the beſt information I have been able to procure on the ſubject, it may be conſidered as a full average crop. If ve may be allowed to judge from the partial ſample yet produced at narket, which is generally of fine quality, it does not appear that the nildewed wheats of laſt ſeaſon, *if they were uſed as ſeed*, have had any ad effects on the produce.

'The quantity of foreign wheat now in our granaries is conſiderable. Still, it is probable, the quantity will not prove too much for he demand, as the new wheats, for ſome months to come, will require mixture of old. Indeed, though new Engliſh wheats were yeſterday rather lower, the freſh, ſound, foreign wheats, obtained more noney. The quantity of ordinary foreign wheats, however, which nuſt keep hanging on the market, will cauſe other inferior wheats to be old at low prices. It is likely that the price of wheat may not be ower for the preſent; but when our ſupply becomes general and plenitiful, a depreſſion in value may be looked for. Still, as it is exportable when the average is under 66s. per quarter, that conſideration may prevent any continuation of low prices. From the quality of Engliſh wheats being fine this ſeaſon, it will behove the ſhippers of wheat from Scotland to this market, to be particularly attentive to its condition, or they will be diſappointed in their expectation of price.

'The quality of barley is coarſe, and fine ſamples are bringing high prices; but ſuch prices can only be maintained while the preſent ſmall ſupply continues. The only new oats of Engliſh growth, of any conſequence, yet come to market, have been from Lincolnſhire; and theſe certainly do not give us a favourable opinion of the quality of their growth, though the importations from Scotland have in general been of good quality. Our arrivals of oats laſt week were large for ſo early a period of the ſeaſon, and prices declined; but the demand being conſiderable, and having none but our home ſupplies, (the Pruſſian ports being ſhut for exportation), prices are already become briſker.

'New beans are ſoft, and but an ordinary ſample. Peas are in general good; but the ſupply of either has hitherto been ſmall. The crop of potatoes is reckoned a large one, and prices expected low. Eſſex and Kent wheats brought yeſterday 75s. and 77s. per quarter.

OBITU-

OBITUARY.

Died at Edinburgh, on 18th October, Mr WILLIAM MACKIE, farmer, Ormiſton.

Mr Mackie was well known in the rural and political world; and, poſſeſſing extenſive abilities, diſtinguiſhed himſelf conſiderably by his different Economical treatiſes. He edited Dirom's work on the Corn Laws, to which ſupplementary letters were annexed, well calculated to ſhew the importance of the trade, and which gained him great applauſe. He alſo wrote ſome pamphlets on the Diſtillery and Malt Laws; and few people in Scotland were better acquainted with the ſeveral meaſures of capacity uſed in different counties, whether ſtatutory or cuſtomary. None reſiſted the attempts of the municipalities to increaſe theſe meaſures, with greater keenneſs, than Mr Mackie. Indeed, few were more able to do it; becauſe none had ſtudied the ſubject with greater attention. The writer of this article was intimately acquainted with him for many years; and, while he laments his death, cannot ſuffer it to be recorded in this publication, without offering a mite of reſpect to his memory.

NOTICES TO CORRESPONDENTS.

THE ſecond eſſay *on the Endurance of Leaſes*, from the Eddleſtone Club, will be preſented in next Number.

An eſſay, which has for its diſtinguiſhing motto, *The beſt Animal on a Farm is a Good Wife;* together with a letter on *Flax Huſbandry*, from Dungannon in Ireland, ſhall alſo be preſented.

We are obliged to the gentleman who has tranſmitted ſome remarks on the Survey of Norfolk by Mr Young, and will likely make uſe of them, when that work is reviewed.

The *Banffſhire Ploughman* ſhall be gratified as early as poſſible.

Sir George Stewart Mackenzie's *Reply to Mr Headrick and A. S.* will find a place; and with this, the diſpute on the analyſis of lime ſhall be concluded.

The Quarterly Reports from Mid-Lothian, Moray, Tweeddale, and Inverneſs, came too late.

Various other papers are received, which we have not time to notice; but each of them ſhall be attended to in courſe.

No. XXV. will be publiſhed on Monday, 10th February 1806.

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